DOCUMENT RESUME

ED 481 267 CS 512 492

TITLE	Proceedings of the Annual Meeting of the Association for Education in Journalism and Mass Communication (86th, Kansas City, Missouri, July 30-August 2, 2003). Communication Technology and Policy Division.
PUB DATE	2003-07-00
NOTE	450p.; For other sections of these proceedings, see CS 512 480-498.
PUB TYPE	Collected Works - Proceedings (021) -- Reports - Research (143)
EDRS PRICE	EDRS Price MF01/PC19 Plus Postage.
DESCRIPTORS	Broadcast Television; Court Litigation; Curriculum Development; Higher Education; *Internet; Interpersonal Relationship; *Journalism Education; Libel and Slander; Mass Media Effects; *Mass Media Use; Privacy; *Television; Video Games; Violence; World Wide Web
IDENTIFIERS	Appalachia; Cultivation Theory (Television); Digital Technology; Identity (Psychological); *Instant Messaging

ABSTRACT

The Communication Technology and Policy Division of the proceedings contains the following 15 papers: "Both Sides of the Digital Divide in Appalachia: Uses and Perceived Benefits of Internet Access" (Daniel Riffe); "Bridging Newsrooms and Classrooms: Preparing the Next Generation of Journalists for Converged Media" (Edgar Huang, Karen Davison, Twila Davis, Anita Nair, Stephanie Shreve, and Elizabeth Bettendorf); "Coming of Age in the E-Generation: A Qualitative Exploration of How Young People Use Communication Technology for Identity Building and Social Interaction" (Sally J. McMillan and Margaret Morrison); "Web Publishing Confronts International Jurisdiction in Defamation Cases: Implications of 'Dow Jones v. Gutnick'" (Constance K. Davis); "The TV That Watches You: Privacy Concerns Involving TiVo" (Kevin D. Williams); "U.S. Local Commercial Television Broadcast Stations on the World Wide Web" (Pi-yun An); "Facing the Challenges of Convergence: Media Professionals' Concerns of Working Across Media Platforms" (author not listed); "Internet Regulation--An Oxymoron?" (Maria Fontenot); "Determinants of Instant Messaging Use" (Namkee Park); "Conceptualizing the Convergence Craze: A Three-Dimensional Model of Multimedia Curriculum Reform" (George L. Daniels); "Massively Multiplayer Mayhem: Aggression in an Online Game" (Dmitri Williams and Marko Skoric); "Liberating Friendships through IM?: Examining the Relationship Between Instant Messaging and Intimacy" (Yifeng Hu, Vivian Smith, Nalova Westbrook, and Jackie Fowler Wood); "News on the Web: The Degree of Print and Broadcast Top News Convergence in New Media" (Jin Xu and A. J. Baltes); "The Transition to Digital Television: Are We There Yet?" (James A. Wall); and "The State of Convergence Journalism: United States Media and University Study" (Carrie Anna Criado and Camille Kraeplin). (RS)

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CS 512 492

Both Sides of the Digital Divide in Appalachia: Uses and Perceived Benefits of Internet Access

Daniel Riffe
Professor
and
Presidential Research Scholar
E.W. Scripps School of Journalism
Ohio University
740-593-2597
riffe@ohio.edu

Paper presented at the Association for Education in Journalism and Mass Communication Annual Convention, Kansas City, July/August 2003. The research reported here was funded by the American Cancer Society.

Both Sides of the Digital Divide in Appalachia: Uses and Perceived Benefits of Internet Access

This report explores the Internet technology gap or "digital divide" in 13 Appalachian Ohio counties. While some efforts have been made to examine Appalachia's level of Internet infrastructure, the purpose behind many of those examinations has been, as a major newspaper reported, "to measure the readiness of businesses and consumers for electronic commerce" (Schiller, 2000, p. H-1).

One study executed as part of that readiness assessment, in fact, used an early survey question ("Do you have a home computer?") to filter out nearly 1,500 potential survey respondents. Those who said "no" to the filter question were dropped from further questioning; they were not asked about access at work, at schools, or at community centers, or whether lack of access was problematic. Those who said "yes" were asked questions about hard drive capacities, modem speeds, connection problems, Internet service provider performance, etc. What emerged was a profile of Appalachian residents on the "have" side of the digital divide, but very little insight into those on the "have-not" side or into constraints that created the divide.

This study, by contrast, seeks deliberately to include views of "have-nots," as Lenhart et al. (September 21, 2000) did in their *Who's Not Online* national survey. More specifically, the study examines the Internet tasks being performed among those who have home access or whose access may be from another site, and assesses perception of the Internet's *potential* use for those tasks among people who currently lack access.

Background:

Appalachian Ohio is plagued by poor schools; environmental health hazards (Riffe & Knight, 2002); gaps in health care access and delivery; inequities in distribution of state and federal resources; and high unemployment and economic underdevelopment. Nine of the 13 counties in this survey, in fact, are identified as "distressed" according to the Appalachian Regional Commission.

At the same time, the Internet is being used increasingly by commercial, non-profit, and government organizations to offer goods, services, and information that are of potential importance to residents of the region. Vital information on health care access, healthful living, and economic and educational opportunities is pouring onto Web sites.

For Appalachia, as for many other "peripheral, less favored regions" (Gillespie & Robins, 1989, p. 13), information technologies and Internet access seemed initially to hold the promise of eliminating "the rural penalty" associated with living in non-urban areas (Hindman, 2000, p. 550). Not since the introduction of the telephone, Dillman predicted (1985, p. 8), had there been such great potential "for overcoming the friction of rural space" and "overcoming barriers of physical distance."

Admittedly, the gap is not unique to Ohio, nor is it exclusively an urban/rural phenomenon. Consider the access gap associated with education, for example: Surveys show 62% of Americans went online in 2002, up from 54% two years ago, but among college graduates, the rate was 88%, for high school graduates it was 52%, and for those without a high school degree it was 22% (The Pew Research Center, June 9, 2002). Similar technology gaps exist within urban areas, between white and minority residents, and between rich and poor (NTIA, July 1999; NTIA, February 2002).

Still, many writers point to a consistent rural-urban gap, *compounded* by education, occupational, and income differences (Hindman, 2000). Burn and Loch (2002, p. 20), for example, summarized a 1999 study when they wrote:

> Those living in rural areas at the lowest income levels are among the least connected. Rural households earning less than $5,000 per year have the lowest telephone penetration rates (74.4%), followed by central cities (75.2%) and urban areas (76.8%). Rural households earning between $5,000-$10,000 have the lowest PC-ownership rates (7.9%) and online access rates (2.3%), followed by urban areas (10.5%, 4.4%) and central cities (11%, 4.6%).

According to Wilhelm (2002, p. 31), the technology have-nots on the "wrong side of the divide" include "a disproportionate share of people living in poverty, functional illiterates, American Indians, blacks living in the South, people in small rural towns and people older than 60."

Critics suggest that the gaps captured in these survey "snapshots" are not static, but foretell a widening chasm in level of benefits to be gained from the Internet, even if access is *increased*. The technology have-nots may eventually gain Internet access, but the relative advantage enjoyed by those currently with access will increase, as in the case of the "knowledge gap" (Tichenor, Donohue, & Olien, 1970), a model predicting that the "information rich" acquire additional information more quickly than the "information poor," so that introducing more information into a social system merely increases the relative advantage of the information rich.

Some believe that the distinction between technology "haves" and "have-nots" is better described as "have nows" and "have laters," and that market dynamics will bring access to all regions eventually (Wilhelm, 2002, p. 31). In turn, Murdock and Golding (1989, p. 193) dismiss "the vicissitudes of the marketplace and its inegalitarian structure," pointing out that by their very nature, information technologies "cumulatively advantage their owners and provide access to expensive and extensive value-added facilities, so that poorer groups are chasing a moving and fast-receding target" (192).

In fact, the assumption that market forces will lead eventually to universal access ignores years of research on innovation and information diffusion that has identified for us the oft-maligned "chronic know nothings" and "laggards" (Hyman & Sheatsley, 1974; Rogers, 1995). That research suggests that, regardless how inexpensive, useful, or virtually essential Internet technology becomes, some will simply not, ever, adopt it. Breaking with the tradition of belittling terminology, Wilhelm (2000, pp. 73-76) describes these have-nots as "immune to progress." In their national analysis of who is not online, Lenhart et al. (September 21, 2000) found that half the adults in America do not have Internet access, and 57% of those have no interest in gaining access.

Wilhelm (2002, p. 31) argues that access inequalities will have dire consequences for American society, particularly as more and more organizations and agencies move to using electronic communication exclusively: "Excluding a disproportionate number of poor, rural, minority and older Americans from the online world is a major policy change." Many of these people—"particularly those in poverty—cannot benefit from job opportunities, social service information and lifelong learning opportunities that build the capacity of all Americans."

Norris (2001, 68) summarizes the dilemma: "The chief concern about the digital divide is that the underclass of info-poor may become further marginalized in societies where basic computer skills are becoming essential for economic success and personal advancement, entry to good career and educational opportunities, full access to social networks, and opportunities for civic engagement."

Further, the variety of communication functions—the "extensive value-added facilities" of Murdock and Golding (1989)—to which the most Internet-integrated users are bending the Internet is increasing exponentially. Thus even offering public site access (e.g., low-speed connections during restricted hours at schools or community centers) may fall short of ensuring equality of *quality* access. "When a technology becomes a resource for attaining or maintaining higher status in society," Jung, Qiu, and Kim (2001, p. 508) wrote, "unequal access to such technology becomes more than a question of ownership. The question of unequal access must address whether there is an ability to *maximize* the utility of the technology for pursuit of various goals" (emphasis added). Norris (2001, p. 92) warns that "people living in poorer neighborhoods may be able to surf the Web from public libraries, schools, and community centers, or even cyber cafes, but this is not the same as having automatic access via high-speed connections at home and the office."

Barriers to Access

Obviously, cost is a factor in limiting access. With some exceptions, a consistent finding of technology adoption studies (Hindman, 2000; Dutton, Rogers, & Jun, 1987) is that early adoption is related to income, along with *social status indicators* correlated with income (e.g., education, occupation). Wade Randlett, organizer of a San Francisco group formed to subsidize low-income access, said, "You won't find many (poor families) able to spend $300 down and $25 a month for what is an important tool but not something as important as eating or taking the bus to work" (Schiller, 2000, p. H-1).

While it is clear then that income disparities might be related to Internet access in poor Appalachian Ohio, the literature suggests that access may also be related in part to perceived benefits and ease of use of information technologies. According to Reagan (2002, p. 79): "Cost is always the primary factor mentioned when innovations are introduced. Still, people may be willing to pay a lot of money if they perceive exceptional value in adopting an innovation. Likewise, they may ignore an inexpensive innovation if perceived benefits are not sufficiently compelling."

Lin (2002) has offered similar observations, citing Rogers' work on diffusion (1995, p. 459): e.g., adoption factors include relative advantage associated with the technology; its compatibility with existing values, experiences, and needs; complexity of its use; ability to try it out; and the ability to see results. Dillman (1985, p. 13) adds that the new technology requires learning new skills: "Learning to be productive in the use of information technologies will likely require much more than taking something out of a box and plugging it in, providing yet another basis for new inequalities."

An important question for research, then, relates to *perceptions* of the functions or benefits of the Internet. How do those who have never accessed the Internet become aware of what it can do? How accurate are their perceptions of or knowledge about advantages provided by access? Is there a "knowledge gap" about what the Internet can do?

Scholars have described how individuals learn about new technologies from others. (Many of us in academic settings can speak personally to how rapidly new uses and applications of information technology are learned among colleagues.) Lin (2002, p. 451) suggested that "social factors" (a "critical mass" of existing adopters, opinion leaders, etc.) can influence "beliefs and attitudes" about "technical attributes of a technology." Bandura (2003, p. 149) viewed this nexus of "psychosocial factors" as key to adoptive behavior. Indeed, Flanagin and Metzger (2001, p. 154) suggest that a medium's attributes (e.g., the "leanness" or "richness" of a medium, or its ability to convey a social presence) are less important in predicting its use than are people's conceptions of its "functional image," a socially constructed image based on "collectively held notions of how the medium is used." Lichtenstein and Rosenfeld (1984, p. 410) also pointed out that media have "clear, socially defined image(s)" that guide normative expectations of media uses and gratifications.

Of course, the issue of how conducive one's social environment is—or is not—to developing a positive "functional image" of technology or learning about adopting information technology is problematic. In their study of rural users of information technology, LaRose and Mettler (1989, p. 48) asked if there might be a "rural mindset that resists the new 'information culture.'" They also pointed to comparatively limited exposure to information technologies in rural settings because many rural jobs do not require or offer that exposure, and the fact that many of the tasks associated with information technology (e.g., shopping or banking) are, in a rural setting, considered part of interpersonal interaction, so "they might also be less willing to use information technologies for everyday interpersonal tasks" (p. 49).

Hindman (2000, p. 551) agreed, noting "the emphasis on tradition rather than innovation, and the localite orientations of rural citizens." To the extent that rural residents or localites view the Internet as "non"-local, they may in fact distrust or fear the Internet. Lenhart et al. (21 September 2000) report that 54% of those not online nationally "believe the Internet is a dangerous thing." A third (36%) are intimidated by an online world they fear as "a confusing and hard place to negotiate."

Similarly, Loges and Jung (2001) explored why many elderly people, often characterized as information technology have-nots, *choose* not to be connected.

Reluctant to reveal credit card information, they do not shop online; fearing invasion of privacy, they avoid chatrooms and news groups. Even though older people choose such avoidance, the authors echo Wilhelm (2002) and suggest it is nonetheless problematic as society transfers "more and more of politics, commerce, education, and recreation to the Internet without contemplating the consequences of that change for people who, for good reasons of their own, prefer not to rely on that medium for those purposes" (p. 558).

Research Questions

Based on the literature reviewed briefly above, this study explores differences among Appalachian Ohio Internet haves and have-nots. Then, it examines Internet tasks being performed by those with home and non-home access, and the likelihood of similar uses among those currently without access. Finally, it asks those who do not have home computers to explain why. Three research questions are examined:

RQ1: Is there an information technology gap in Appalachian Ohio and what are its correlates?

RQ2: What are the uses that those with home or away-from-home access make of the Internet, and how do they compare with perceived potential uses among those with no access?

RQ3: What are the reasons identified by those without home computers?

Method

The research was conducted as part of a descriptive survey of 13 Appalachian Southeastern Ohio Counties for the American Cancer Society's Ohio Division. Nine of the 13 counties are classified as "distressed" by the Appalachian Regional Commission. In July 2002, trained interviewers using CATI equipment phoned 3,470 randomly selected numbers purchased from a commercial firm and proportional to the 13 counties.

Nearly 2,000 were non-working, were answering machines, were business numbers, or were not answered. Of 1,435 calls that yielded a connection, 523 (36%) were completed. A conservative estimate of sampling error associated with a sample of 523 is +/- 4.3 % at the 95% confidence level.

Interviewees answered a series of questions about home computing and Internet access at home or away from home. Those who reported not having a personal computer at home were asked to describe in their own words "any particular reason why" they do not. Interviewees—with and without access—were also asked about thirteen specific tasks or uses of the Internet. Those with access—whether at home or away from home—were asked to report whether they typically *do* use the Internet for each of the tasks. Those reporting no access were asked what tasks they *would* use the Internet for, if they had access.

Findings

Table 1 shows that nearly two-thirds (64%) of the surveyed homes in these 13 Appalachian counties do have a personal computer. Of those with a computer, 85% have home Internet access. Viewed differently, 54% (284) of all interviewees reported home Internet access.

Of the respondents reporting no home computer, 44% reported access from outside the home, while 56% have none. Clearly, the latter are on the "have-not" side of the digital divide—with neither home access nor away-from-home access—providing an affirmative answer to the first research question ("Is there an information technology gap?").

Ignoring for the moment any differences in quality of access (home versus elsewhere), we can combine those with home computers and home Internet access (n=284) with those 44% without a home computer but access away from home (n=83). The resulting 367 respondents with *some* access represent a combined 70% of the 523 interviewed, a figure slightly—and surprisingly—higher than the 62% nationwide reported by Pew (The Pew Research Center, June 9, 2002).

Moreover this study's 54% (284) of 523 interviewees with home Internet access is higher than the national, Census-based 49% of rural households reported by NTIA (February 2002) and higher than the 43% Internet penetration in rural areas reported by Lenhart et al. (September 21, 2000). It is higher than the 32% for all counties of Appalachian Southeastern Ohio and closer to the proportions associated with metropolitan Cincinnati, Cleveland, and Columbus (Zachariah, 2001).

Two caveats: first, because this study used a phone survey, it excludes the poorest households without phones, homes that might have been sampled in the Census data. Second, two of these 13 counties have a small college and a university that represent high density "pockets" of higher socioeconomic households, even though the other counties and the parts of the counties surrounding those pockets are lower in income and educational attainment. A third of respondents from those counties have college degrees, compared to 23% of the sample as a whole. Those counties, in fact, have home Internet access at 64% and 76% of homes, thereby elevating the 13-county percentage to 54%.

But the very presence of higher income and higher education respondents within the sample provides special insight into the intricacies of the digital divide. Presented earlier as an urban/rural phenomenon—a gap between Appalachia and urban areas—the gap is shown here as more a function of social status indicators like education and income, even *within* Appalachia.

Table 1 also examines the relationship of education and income to access. Home computer ownership is clearly and monotonically related to education, with a near-50% difference in percentages of ownership for non-high school graduates (35%) and college graduates (84%). Home computer ownership is also affected by lower income, as might be expected, with the gap at roughly 40% between the poorest and the wealthiest.

Education and income data for those with home Internet access, and for those who access the Internet away from home, show similar gaps. The 50% shrinks to a 36% difference between non-high school (58%) and college graduates (94%) for home access. In short, less education and lower income are related to home access, even among those who have home computers. Finally, the education and income gaps are most starkly illustrated in the case of those who do not have home computers or home access: e.g., of those without home computers and who lack a high school degree, 83% lack any access.

When ages are compared for haves and have-nots, the data generally show an age gap, as well. Mean age for those with a home personal computer is 43.5 years, compared to 54.7 for those without ($t = -6.66$, 518 d.f., $p<.001$). Within the group with a computer at home, however, the age difference between those with (43.6 years) and without (42.7 years) home Internet access is not significant. Among those without a home computer, there is again a significant age difference among those who do (48.4 years) and those who do not (59.7 years) access the Internet from elsewhere ($t = -4.05$, 185 d.f., $p<.001$).

Table 2 further examines the relationships of education, household income, and age to access. The re-cast data make even clearer the relationship of education and income to one's Internet access, by showing the percentage within each education or income level with no access (e.g., 63% of those who have not completed high school lack any access, compared to 28% of high school graduates and only 8% of college graduates; 46% of those in the lowest income bracket lack access, compared to 6% of those in the highest bracket). Viewed alternatively, the home access gap between non-high school and college graduates is 58%; between the poorest and the richest it is 40% to 50%. In both analyses, the associations are significant: for education, X^2=86.13 (8 d.f., p=.001), and for income, X^2=85.33 (10 d.f., p=.001). The table also shows the monotonic relationship between age and level of access (F for the oneway analysis of variance among mean ages is 33.97 [2,467], p=.001).

Research Question 2 asked about the uses of the Internet for an array of 13 tasks among those with home access and those who have limited (away from home) access, and about perceived *potential* uses among those with no access. Admittedly, asking those with no access if they might use the Internet for task "X" or "Y" is at first glance problematic. It seems intuitive, for example, that respondents without access might find it difficult to imagine these uses or to project functional equivalence of the Internet as a source for what is currently served by another means.

The 13 tasks, however, reflect what are fairly common uses among those with access. The goal of the analysis, moreover, is not to pinpoint precisely how many of those without access might, for example, get Internet sports scores if they could. The value is in comparing the *range* of possible or potential tasks or uses of the Internet that this subset of respondents acknowledges—or does not. Arguably, endorsement of a particular use or, conversely, uncertainty (or cognitive inaccessibility) about it may indicate level of knowledge about the Internet, or reflect the "socially constructed image" of the Internet for these Appalachian residents.

Table 3 data reveal the responses to the 13 tasks, controlling for level of access. The tasks are presented in descending rank order of responses among the 283 with home access to the Internet (e.g., with 72% "yes" responses, getting travel information is the number one of 13 tasks among those 283). Task ratings ranged from 20% to 72% for those with home access. Eight of the tasks offered were affirmed by more than 40% of the respondents with home access, an indication of the relatively "rich" array of uses compared to the other two levels of access, where no task was affirmed by as many as 40%. Moreover, home accessers were more likely to say "yes" to any and all of the tasks than either the away-from-home accessers or those with no access; for none of the tasks were their percentages lower than for respondents without access or with non-home access.

In fact, among those with home Internet access, the mean number of actual uses reported was 5.5 (s.d.=2.94), with only 7% of those respondents reporting that they did not use the Internet for *any* of the 13 tasks, another indication of the richness of the array of uses for this group. Among those with non-home access, however, the mean was 2.4 tasks (s.d.=2.59), with 35% reporting not using the Internet for *any* of the 13. Finally, among those with no access, the mean number of affirmed potential uses of the Internet was also 2.4 tasks (s.d.=3.54), but a majority (55%) reported they would not use the Internet for any of the 13 tasks, even if they could.

Among those accessing the Internet away from home, the array was less rich, and the uses affirmed by smaller percentages. Only one task (for work-related information) was reported by as many as a third of the respondents; for many, perhaps Internet access was *at* work. Nine of the 13 tasks were affirmed by as few as one in five or fewer ($\leq$20%), and use ratings ranged from 7% to 33%. On 10 of the 13 tasks, in fact, *smaller* percentages of those with non-home access were likely to acknowledge using the Internet than those without *any* access were to acknowledge *potential* use for these tasks; only for work-related information (33% to 23%), "to pass the time" (30% to 25%), and "just for fun" (30% to 24%) did non-home access respondents have higher percentages.

In some ways, those who lacked any access but endorsed potential uses were more "serious" in their projected uses than were those with non-home access. For example, those without any Internet access were more likely to report that they would use the Internet for news (locally, nationally, and globally), for financial information and for job opportunities, and for religion news than were the respondents who accessed away from home. These percentages for potential use, however, were still well below those for respondents with home access.

Still, among those without any access, potential use ratings ranged from a low of 17% for on-line discussion participation to a high of 28% for travel information, the number one task among those with home access. In fact, despite the absolute differences in percentages (e.g. 72% versus 28%), two rank order correlations (Spearman's *rho*) among the three task arrays are positive and significant: .64 between home access and non-home access, $p=.02$; .57 between home access and no access, $p=.04$; but only .13 between non-home access and no access.

Of course those correlation coefficients are somewhat misleading, for two reasons. First, the absolute magnitude of the differences in percentages (72% to 28%)

illustrates how much information is lost when percentages are reduced to ranks. Perhaps equally important, in terms of this study's goal, is the percentage of "don't know" or uncertain responses that characterizes the task arrays for the non-home access respondents and, in particular, the no-access respondents.

For all 13 tasks, no more than 1% of those with home access reported uncertainty about using the Internet; clearly, those 283 have an accurate picture of how they use the Internet. From 6% to 8% of those with non-home access, on the other hand, reported uncertainty about using the Internet for those tasks. But among those with no access, from 11% to 15% indicated they did not know if they would—or could—use the Internet for those tasks.

Thus, we see two qualitatively different aspects of the tabulated data. First is the richness of the array of tasks for those with home access—even the lowest ranked task was reported by 20% of the survey respondents—compared to only 33% endorsement for the highest ranked task among those with non-home access, and 28% for the highest ranked *potential* task among those without access. The second qualitative dimension is the apparent uncertainty or lack of knowledge among so many of the no-access respondents about what the Internet could or would do, as shown by the "don't know" responses among 11% to 15% of them.

Finally, Table 4 reports the reasons offered by those 178 respondents who report that they do not have a home computer. Based on predictions about rural residents' attitudes toward things "alien" or non-local, the anticipation was that many expressions of technology distrust or dislike would emerge in the open-ended responses. These eight categories are the dominant response patterns, but do reflect some collapsing of the actual responses that were keyboarded into the computer by interviewers. For example, the "cost" category encompasses "can't afford," or "cost too much," or "don't have the money," or "financial reasons." "Age/infirmity" includes "age," "I am blind," "I am handicapped," and "Well, I am 86 and don't see the reason to get one." As anticipated, "dislike/distrust" included answers such as "I have heard bad things about having them," "I don't like them," "I worry about my privacy," "philosophical differences," and "people put too much dependence on the computer that they should in themselves." Yet such sentiments were offered by only one in 10 of those not owning a computer.

Consistent with the relatively high incidence of "Don't Know" responses to the 13 task questions, "No reason" indicates those survey respondents who did not offer a reason why, and should not be confused with "no need" responses—those indicating that the respondent believed he or she had no needs that could be served by a computer.

Discussion and Conclusions

The data on Appalachian residents reported in this primarily descriptive study confirm many of the Internet access gaps encountered elsewhere—between rich and poor, between old and young, and between the more educated and the less educated. Yet the presence in two of these 13 counties of higher socioeconomic households leads to a distorted picture of Internet access in Appalachia, yielding in fact an overall proportion of online households that matches many major metropolitan levels. That should serve as a caution for those who embrace aggregate percentages of online households and hail progress on this front. On the other hand, controlling for social status indicators illustrates that the digital divide exists as much *within* Appalachia as *between* Appalachia and more economically stable urban areas. In essence, the data show a measure of stratification within Appalachia, stratification that is related to the divide. Even within poor Appalachia, the rich get richer, in terms of attaining the advantages of Internet access. Though she focused on international comparisons, Norris (2001, p. 71) has warned that patterns of innovation adoption "in highly stratified societies will usually reinforce existing socioeconomic disparities."

Nearly two-thirds of those surveyed in these 13 Appalachian counties do have a personal computer and over half have home Internet access. When considering those without a home computer but access away from home, a combined 70% have *some* access. But there is clearly a digital divide, a technology and Internet access gap closely associated with education, income and age. Home computer ownership is related monotonically to education, with a near-50% difference in ownership between non-high school and college graduates. Computer ownership is also affected by income, with the gap roughly 40% between the poorest and the wealthiest.

Respondents with home access perform a relatively rich array of Internet functions compared to those with away-from-home access. In fact, only 7% of those with home access reported that they did not use the Internet for *any* of the 13 tasks, another indication of the richness of the array of uses for this group. Among those with non-home access, 35% reported not using the Internet for *any* of the 13, while a majority of those without access (55%) reported they would not use the Internet for any of the 13 tasks, even if they could.

Those without access indicated greater potential use of the Internet for news, for financial information and for job opportunities, and for religion news than the *actual use* reported by respondents who accessed away from home. Equally important is the percentage of "don't know" or uncertain responses that characterizes the task arrays for the non-home access respondents and, in particular, the no-access respondents.

Taken together, the data relating level of access to income, age, and education, along with the open-ended responses, point less to the importance of any localite/non-local orientation or distrust of technology as sources of the digital divide, and more—unfortunately—toward knowledge or beliefs about Internet capabilities and to social structural factors that may be more difficult to change.

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Table 1: Home Computing, Internet Access, Education, and Income

	%Yes	%No	(n)
Have a personal computer in the home:	**64**	**36**	(523)
Less than high school graduate	35	65	(54)
High school graduate	53	47	(200)
Some college	73	27	(144)
College graduate	83	17	(78)
Postgraduate	84	16	(43)
Less than $10,000	41	59	(58)
$10,000 to $25,000	42	58	(108)
$25,000 to $40,000	68	32	(111)
$40,000 to $60,000	85	15	(96)
More than $60,000	77	23	(86)
Refused	69	31	(45)
Have Internet/Web access from home computer:	**85**	**15**	(332)
Less than high school graduate	58	42	(19)
High school graduate	81	19	(106)
Some college	88	12	(105)
College graduate	94	6	(65)
Postgraduate	89	11	(36)
Less than $10,000	75	25	(24)
$10,000 to $25,000	73	27	(45)
$25,000 to $40,000	80	20	(75)
$40,000 to $60,000	95	5	(82)
More than $60,000	92	8	(66)
Refused	84	16	(31)
Have Internet access outside home:	**44**	**54**	(188)
Less than high school graduate	17	83	(35)
High school graduate	46	54	(94)
Some college	62	38	(39)
College graduate	54	46	(13)
Postgraduate	57	43	(7)
Less than $10,000	29	71	(34)
$10,000 to $25,000	48	52	(63)
$25,000 to $40,000	42	58	(36)
$40,000 to $60,000	43	57	(14)
More than $60,000	75	25	(20)
Refused	43	57	(14)

Table 2: Education and Income, by Internet Access

	Access Internet/Web:			
	Home	Away	No Access	
Education	%	%	%	(n)
Less than high school graduate	24	13	63	(46)
High school graduate	48	24	28	(180)
Some college	70	18	11	(131)
College graduate	82	9	8	(74)
Postgraduate	82	10	8	(39)

chi-square=86.13, 8 d.f., p=.001

	Home	Away	No Access	
Income	%	%	%	
Less than $10,000	35	19	46	(52)
$10,000 to $25,000	34	31	34	(96)
$25,000 to $40,000	62	16	22	(96)
$40,000 to $60,000	85	6	9	(92)
More than $60,000	75	19	6	(81)
Refused	65	15	20	(40)

chi-square=85.33, 10 d.f., p=.001

Mean age in years:	43.6	48.4	59.7

F=33.97 (2,467), p=.001. All means significantly different by LSD, at p=.05.

Table 3: Actual and Potential Uses of Internet/Web, by Internet Access

"When you use the Internet, do you"/ "If you could access the Internet, would you":	Access Internet/Web: Home		Away		No Access	
(n=)	(283)		(84)		(103)	
Use it:	% yes	% DK	% yes	% DK	% yes	% DK
to get travel information	72	1	25	6	28	14
for work-related information	57	1	33	7	23	12
to pass the time	50	1	30	8	25	11
to reach or connect with others in your community	49	1	20	6	24	14
just for fun or to cheer you up	46	1	30	8	24	12
for national news of what's happening around the country	46	1	13	7	26	13
for world news of what's happening in the world	46	1	13	7	27	13
for sports scores and information	40	1	13	6	17	13
for local news of what's happening where you live	38	1	13	7	27	14
to learn about money and finances	35	1	14	6	24	14
to look for a job	27	1	14	6	22	12
to get religious information	27	1	16	6	19	15
to participate in on-line discussions	20	1	7	6	17	13

Table 4: Reasons for Not Owning a Personal Computer

(n=178)	%
cost	28
no reason	15
no need	15
age/infirmity	10
dislike/distrust	10
don't know how	9
other	7
no interest	7

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Bridging newsrooms and classrooms

Preparing the next generation of journalists for converged media

Edgar Huang
Karen Davison
Twila Davis
Anita Nair
Stephanie Shreve
Elizabeth Bettendorf

Department of Journalism and Media Studies
University of South Florida St. Petersburg

Edgar Huang
140 7th Ave S, FCT 230 USF
St. Petersburg, FL 33701
727-553-1047
huang@stpt.usf.edu

We thank Andrew Meacham Javier Molinos and William Graveley for their involvement in the data collecting for this study.

Bridging newsrooms and classrooms

Preparing the next generation of journalists for converged media

Abstract

This study has provided empirical evidence that will help journalism educators make informed decisions about how to teach media convergence. A national survey was conducted among college professors, news professionals, and news editors. The study found strong support for training generalists and teaching new technology while continuing to emphasize critical thinking in journalism schools. It concludes that dealing with media convergence in college journalism education is an urgent necessity.

Introduction

An increasing number of media companies around the country such as *The Washington Post*, Media General, The Tribune Company, and New England Cable News have taken solid steps to merge different media, such as newspapers, television stations, radio stations, and online journalism companies, to disseminate news content on multiple media platforms. Media call this industrial trend "media convergence," though the concept means much more than media mergers. Media convergence muddies the lines among broadcast journalism, print journalism, and online journalism, leaving college journalism educators to wonder how to train journalists for converged media.

Many questions concerning college journalism education have arisen as media convergence is gradually shaping the landscape of the media industry. For instance, should journalism educators consider merging different sequences such as magazine, newspaper, broadcast, and photojournalism? Are college journalism educators themselves both theoretically equipped and technologically prepared to teach their students for converged media?[1] What do media companies expect from future news practitioners? What do current news practitioners in converged media feel lacking? For both news practitioners and professors, the two most urgent questions cry for answers: Should J-schools train specialists or fit-for-all generalists? And how should college journalism education balance the teaching of critical thinking and technical skills? Finding answers to these questions is vital to the strategic development of college journalism education in the years to come.

The 1999-2000 president of the Association for Schools of Journalism and Mass Communication (ASJMC), Shirley Staples Carter, questioned whether, in the midst of the "Internet revolution," programs are prepared to educate journalists of the future (Sutherland, 2001). When specifically talking about writing, Keith Hartenberger, manager of news and programming for Tribune Regional Programming, said that journalism schools should make their students aware of the many ways to present the news. "It's a multimedia world out there," he said. "If you're just being prepared to write newspaper stories, you won't be prepared" (Sandeen, 2000). "At some point, this [cross-media training] is something we're going to expect from everyone" (Nelson, 2002).

A national survey was conducted among journalism professors, news editors or directors, and non-managerial news professionals from daily newspapers and commercial television stations to explore the answers to the above questions. The goal of the study is to provide evidence that will help journalism educators make informed decisions about how to respond to media convergence in their curricula and courses and lay an empirical foundation for further discussions and conversations about media convergence.

Literature Review

The search results from different search engines and databases from August to September 2002 show that media convergence is a comparatively new topic in media research, though articles about it have inundated the Internet, magazines, and newspapers. Most research writings appeared no earlier than 1998. Articles about the relationship between media convergence and higher education are rare and have shown up more recently in trade magazines such as *Presstime*, *Quill* and *Journalism Education Today* and on Web sites such as www.poynter.org, www.asne.org, and www.ojr.org. A few research writings were found in academic conference (i.e., AEJMC) proceedings.

Many writings have addressed one of the toughest questions: What is media convergence?[2] How to define "media convergence" had a direct bearing on how we conducted this study. Out of these writings, we identified four categories of media convergence that directly affect how journalism will be taught in colleges.

Content convergence. As Tremayne (1999) noted, decades ago, the term media convergence referred to the content convergence between competing newspapers and even among newspapers, magazines, and television. Today, content convergence continues among merged media companies and among non-merged media companies.[3]

Form convergence (or technological convergence). Around the mid-1990s, as Tremayne (1991) and Wurtz (2000) noted, computer technology and Internet technology made possible the convergence of all forms of mediated communications including video, audio, data, text, still photo, and graphic art for "on-demand" audiences. Technology has been the backbone of media convergence.

Corporate convergence. Since the late 1990s, media convergence has been upgraded to the level of media mergers. Taking advantage of the new technology and seeking synergy from news professionals across media platforms, some media companies have been merged to disseminate news and commercial contents across platforms. For instance, The Tribune Interactive has brought together the interactive functions of the company's four newspapers and more than a score of television stations including WGN-TV and CLTV (Abraham, 2001). The individual media outlets have their own news-gathering staff, but their coverage is enhanced by their multimedia desks in the *Chicago Tribune* newsroom and the Tribune Media Center in Washington. "A synergy-team of print editors and TV news veterans at the *Chicago Tribune* work together to manage resource sharing and the relationship" (Ibid). Corporate convergence via vertical and horizontal integration, mergers, alliances, and acquisitions will make traditionally defined segments of the communications industry less and less distinguishable (Moon, 2001).

Role convergence. Russial (1995) identified several types of role convergence in newsrooms. For instance, the roles of reporter and librarian, the roles of copyeditor and compositor, the roles of graphic artist and Web designer, and the roles of photo editor, darkroom technician, and photographer are all converging in different media. In more recent years, content convergence, form convergence, and especially corporate convergence have sparked more in-depth role convergence among news practitioners. For instance, Victoria Lim from the News Center in Tampa primarily works as a television reporter for WFLA-TV, but she also writes for the company's newspaper, *The Tampa Tribune*, as a senior consumer investigative reporter, and writes and reports for the Web company TBO.com (Bulla, 2002). A newspaper reporter may also produce a newspaper in QuarkXPress or serve as a TV news anchor, while a newspaper photographer may shoot video stories or produce interactive online stories in Flash. Role convergence requires that both reporters and editors re-equip themselves both journalistically and technologically.

Of the four types of convergence, role convergence has the most direct effect on future journalism education. Within the media industry, there are mixed feelings about training generalists. Gates (2002) argued, "The 'backpack journalist' — a superhack master of multimedia who can do it all and who routinely packs a laptop and a video camera along with the tape recorder and steno notebook — may be the subject of avant-garde j-school courses, but it's not likely to become the norm." Gil Thelen (2002), executive editor and senior vice president of *The Tampa Tribune*, gave similar suggestions to journalism educators based on his two years of experience in the News Center. "The fully formed, all-purpose, multiplatform, gadget-laden journalism grad is NOT what we're looking to hire. … Journalism schools must continue to produce graduates who are competent in one craft area: reporting, design, producing, directing, editing." However, he encouraged J-schools to train writers to write for print, online, and broadcast and train print photographers to learn how to shoot and produce TV packages. The tenet of media convergence, according to Thelen, is that employees or journalism students need to learn to cooperate and collaborate across newsrooms (Ibid.). Convergence further complicates the age-old battle in journalism education between the teaching of longstanding staples such as ethics, law and theory, commonly grouped together as "critical thinking," and the teaching of professional skills when technology penetrates every facet of news gathering, preparation, editing, production, and delivery (Kunkel, 2002; Ryan & Switzer, 2001; Hamilton & Izard, 1996).[4] Although editors and academics sometimes agree on the qualifications a journalism student needs, an ideal curriculum doesn't always include convergence preparedness courses. In a 2000 poll, editors and educators agreed "on the same five of 14 types of knowledge considered most necessary for journalism graduates and listed them in the same order of importance"

(Terry, 2000). Technical skills were not mentioned in the top five, surpassed instead by "understanding of a journalist's responsibility to the public, understanding of the ethics of journalism, knowledge of current events, broad general knowledge, and knowledge of government" (Ibid.). Abraham (2001) noticed that the goal of most restructuring in journalism institutions is to provide an integrated skills environment where students would get the chance to practice the skills of multimedia production. Abraham argued:

> The role of journalism academy should be very different from that of the industry. Its role should not simply be to inculcate skills that will help students to flag down jobs. They should aim to provide a scholarly background for a deeper intellectual understanding of our lives, media forms and of communication in general (Ibid).

Mitchell Stephens (2000), professor of journalism and mass communications at New York University, agreed, "In a world where corporate pressures on 'content providers' seem to be increasing and civic affairs decreasing, the argument for emphasizing the basics does have much to recommend it." Robert Haiman (2001), President Emeritus of the Poynter Institute, repeatedly emphasized the importance of content and said that journalists should be primarily trained to think critically so as to produce good content. To students, Haiman said that the journalists who will be the most successful in the converged world are the same ones who are the most successful today, and they are the ones who are best trained in six areas: reporting, writing, editing, ethics and media law, research techniques and specialized knowledge such as business, finance, law, science, health, aging, and the environment (Ibid.). The dean of the University of Nevada at Reno, on the other hand, thinks the ability to use multiple media skills is essential (South & Nicholson, 2002). Brigham Young University, which has built a working converged newsroom into its curriculum, expects students to graduate with multiple skills. University News Director, Dean Paynter said, "We expect our students to more than anchor, more than report, and more than produce. The best ones can do it all, including write for the newspaper" (Hammond et al, 2000).

In the summer of 2002, Bulla presented a comprehensive study on the impact of media convergence on college journalism education. His was the first research writing of its kind. Bulla's study looked at the changing nature of contemporary mass communications practices, focusing on multimedia or converged journalism. It described what scholastic journalism scholars are doing to prepare their students for these changes and provided recommendations to educators about how to update curricula to account for convergence. The research questions for that study were: (1) what are journalism educators currently doing to incorporate convergence into their curricula; and (2) what abilities, skills, and attitudes do professional journalists expect from their newest employees? Media convergence in Bulla's study was defined as multimedia journalism, which means reporting, writing, and disseminating content in two or more media platforms.

Because of the controversy about media mergers, Bulla tried to find answers to some hot issues concerning democracy including: Does corporate media merging reduce public discourse and hinder democracy? Will it ultimately mean the need for fewer and fewer reporters, as the development of other technology has meant a decline in the number of employees in other areas of the production process?

Bulla obtained a sample of 114 news practitioners working at newspapers, television stations, wire services, magazines, radio stations, and online publications in the United States. The sample was randomly selected from *Editor & Publisher* and Yahoo lists of media companies in the U.S. Media Web sites. With a response rate of 36 percent, Bulla interviewed 41 news practitioners. Bulla also interviewed college educators, but he did not state how he sampled them.

The question is whether a sample from two potentially overlapping lists is any longer a random sample. In addition, since Bulla's questions were almost all unstructured, that is, he conducted interviews,[5] he did not really need a random sample. Researchers strive for depth rather than breadth and don't mean to claim external validity in the statistical sense by conducting interviews. Finally, if he did need a random sample, a sample of 114 people with a 36 percent response rate could be statistically defective because of big statistical errors. Bulla needed a better research design to make his study valid and reliable.

To teach students to do multi-platform reporting, professors themselves must be prepared. Some scholars doubt whether J-school professors are theoretically and especially technologically prepared to teach media convergence. In an article written for

Journalism Education magazine, John Irby (2000), a professor from Washington State University and a veteran newspaper editor and publisher, for instance, was concerned about the disconnection between the newsroom and the classroom. He asked:

> Are universities and educators effectively preparing students for the work force? Do educators understand what newspapers are looking for in future reporters and editors? Does the newspaper industry have a responsibility in the division between educators and professionals? Are journalism educators 'discounted' by professionals who believe those who teach couldn't succeed in newspapers?

Irby said older generations of newspaper reporters also appeared on radio and television periodically though they had no training; they never even felt like it was part of their job and thus did not take it very seriously. But now, he continued, print journalists do need to take it seriously; journalism educators need to re-evaluate, and probably modify, the separate track approach in training print and broadcast journalists. Irby believed that there is still a need for specialization, but he told students to take both broadcast and print courses and told them that computer literacy is as crucial as the old-fashioned kind.

Based on our literature review, media convergence in our study is defined as the assimilation of media content for multiple media platforms. Media convergence may involve any combination of the convergences of media contents, media forms, media companies, and roles of news practitioners.

Our general research question is how college professors should prepare students to cope with media convergence. To be specific, should college professors prepare generalists who can competently work in multiple media platforms or prepare specialists who know inside out how to work for one particular medium platform? How should J-schools balance the teaching of critical thinking and technical skills? Should technical skills be taught at school or on the job? The study serves both as an attitude finder and a fact finder. We are also interested in finding out the answers to two related questions. How many J-schools have revamped their curricula or developed new courses to prepare students for the trend of media convergence? Are college journalism educators themselves both theoretically equipped and technologically prepared to teach their students about media convergence?

Methodology

Editors include daily newspaper editors in charge of newsroom operations or online news operations and news directors in charge of newsroom operations in a commercial TV station with news content, both in the United States. News professionals refer to non-management news staff, such as reporters, anchors, photographers, designers, producers, Web staff, etc., working in American media companies. Journalism professors are defined as full-time instructors with any academic rankings who teach journalism courses in a U.S. journalism school, department, program, or division,[6] which could be administratively affiliated with an institution with a name like College of Communications or Department of Communications Studies.

To obtain opinions about media convergence, we could have targeted our survey only at those editors and news professionals in a merged media company. The opinions obtained from those editors and news professionals, however, could be biased. Those media companies that have not gone through merger must have a reason for not doing so. We also wanted to find out what they are doing about convergence. Balanced views both from the merged and un-merged media companies will better assist colleges in their strategic planning.

We conducted a national survey among editors, news professionals, and journalism professors with three different versions of online survey questionnaires posted on a school Web site. Respondents were asked to fill out the questionnaire online and submit answers online as well.

There were 17 questions in each of these three questionnaires. Almost all questions were close-ended. About half of the questions used Likert Scale from “Strongly Agree” to “Strongly Disagree.” Some questions across the three questionnaires shared similarity, so that comparisons could be made when analyzing data. A text field was created for respondents to provide feedback to the survey freely. The textual answers in the text field will be reported along with the statistics to illustrate and explain the quantitative findings. All questionnaires went through pilot tests. The unit of analysis was each participant.

In order to conduct a systematic random sampling of editors and news professionals, we needed a list of newspaper editors and TV news directors in the United

States and a list of newspaper and TV news staffers. We found that such lists did not exist. Therefore, we decided to construct our own.

After further research, we decided that newslink.org's daily newspaper list at http://newslink.org/daynews.html was the most comprehensive and workable list for sampling daily newspapers. In total, 1190 U.S. daily newspapers with a valid URL were listed alphabetically by state. We sampled one out of every four dailies. Then, we visited each of those Web sites to find the email address of the managing editor, chief editor, online editor or equivalent in each of those dailies and sent out a survey invitation email to him/her. If an individual email address was not available, we replaced it with a generic email address such as news@nytimes.com listed on their Web site and specified that the email was for the editor.

To sample TV news directors, we also used newslink.org's TV stations list at http://newslink.org/stattele.html. In total, there were 1093 companies ordered alphabetically by state. From the list, we removed PBS network companies, which mostly did not provide staff information, companies that did not generate news content such as WB network companies and UPN network companies, religious TV stations, and foreign language stations. In total, we extracted 674 TV stations with a valid URL. Since this population is smaller than that of the newspapers, we sampled every other station instead of every four. Then, we visited each of those Web sites to find the email address of the news director or equivalent in each of those TV stations and sent out a survey invitation email to him/her. If an individual email address was not available, we replaced it with a generic email address such as news@wptv.com and specified that the email be for the news director.

In total, we successfully sent out invitation emails to 523 newspaper editors and TV news directors as our sample.

We also sampled one news professional out of each of the sampled U.S. dailies and TV stations for the survey. Since there was always more than one professional in a company, we simply randomly clicked on one name and picked him/her and made sure that s/he was on the news staff. Then, we sent him/her a survey invitation email. If an individual email address was not available, we replaced it with a generic email address and specified whom the email was for. S/he was asked to fill out a questionnaire that was worded in a slightly different manner. In total, we successfully sent out invitation emails to 398 news professionals.

We also needed to conduct a systematic random sampling of college journalism professors, but we were disappointed that all lists we found had many J-schools, even major ones, missing.[7] Therefore, a new list was built upon the existing lists and upon the findings from a more careful search in the Yahoo U.S. Colleges and Universities site at http://dir.yahoo.com/Education/Higher_Education/Colleges_and_Universities/United_States/. This most comprehensive new list of U.S. J-schools, as a byproduct of the study, is posted on the University of South Florida St. Petersburg Journalism Studies Program's Web site at http://www1.stpt.usf.edu/journalism/j-schools.html. In total, the new list contains 205 alphabetically ordered U.S. J-schools that contain 2194 journalism professors. We sampled one out of every four professors from the virtually running list of all journalism professors across the schools. For instance, if a school had six journalism professors, we picked the fourth one; then, the second journalism professor from next school was picked. We sent an invitation email to every professor in the sample. In total, we successfully sent out 500 emails.

The three samples of editors, news professionals, and professors included 1421 cases.

We understood that nonresponse had been a serious problem with online surveys in recent years. In order to counter possible low response rates in our survey, we created three samples for editors, news professionals, and professors containing roughly 500 people for each group, which were much larger than the sample sizes for populations recommended by Mildred Patten (2000) in her book *Understanding Research Methods: An Overview of the Essentials*, so that, if low response rates occurred, we could base our confidence limits on the actual number of responses themselves. We also sent out one reminder email to the samples, which drastically boosted the response rates, especially for professors and news professionals.

Findings and Discussion

After two weeks of online data collecting in November 2002, we received 223 responses from professors (a 44% response rate), 160 responses from editors (a 31%

response rate) and 142 responses from news professionals (a 35% response rate).[8] The overall response rate is 37%. As Singletary (1994) notes, returns of 30% to 40% are common in mail surveys (p. 148). The response rates of this online survey seem typical. However, the response rates are still comparatively low. A response bias is potentially present. Many respondents (41%) left textual answers to explain and illustrate their answers to the close-ended questions and/or made comments on the topic.

1. Should J-schools train specialists or generalists?

Gil Thelen (2002) said that writers should learn how to write for multimedia and still photographers should learn how to shoot videos, but he was not interested in hiring people with multiple sets of skills. We designed four questions to test how popular Thelen's opinion was. The majority of the respondents (84%) agreed or strongly agreed with Thelen that journalism students should learn how to write for multiple media platforms. One-way ANOVA shows significant difference among the means for professors (4.35), professionals (4.05), and editors (3.99) (F=7.4, df=2, p<0.001).[9] Tukey HSD post hoc tests show that professors were more positive on this statement than editors and professionals, while no significant difference existed between editors and professionals.

A similar number of respondents (85%) agreed or strongly agreed with Thelen that journalism students with a visual emphasis should learn how to produce and edit photos, videos, and online interactive images. One-way ANOVA shows significant difference among the means for professors (4.55), professionals (4.22), and editors (3.91) (F=25.79, df=2, p<0.001). Tukey HSD post hoc tests show that professors were more positive on this statement than professionals, while professionals were more positive than editors.

Most respondents (78%) agreed or strongly agreed that all journalism majors should learn multiple sets of skills, such as writing, editing, TV production, digital photography, newspaper design, and Web publishing. One-way ANOVA shows significant differences among the means for professionals (4.28), editors (3.99), and professors (3.86) (F=6.7, df=2, p<0.001). Tukey HSD post hoc tests show that news professionals who worked in the forefront of news production felt this need more deeply than other respondents. Editors also had such an expectation for them. There is no significant difference between editors and professors. These findings support the growing evidence that news professionals are being asked to wear multiple hats. The findings also indicate that Thelen's view has its market at this moment when news professionals with multiple sets of skills are not easy to find. Such a view may change as more journalism graduates equipped with multiple sets of skills enter the job market. The professors' textual answers show that some of the difficulties J-schools have come across include the lack of a friendly curriculum, lack of credit hours to include the components of convergence content, lack of willing cooperation among faculty from different sequences, and lack of expertise, interest or even time for some professors to develop new courses on convergence.

When asked whether journalism students should still have a specialization, such as writing, photojournalism, broadcasting, and new media, over half (63%) of the respondents agreed or strongly agreed. Over a quarter of the respondents (28%) were negative and 9% were not sure. One-way ANOVA mean comparisons show no significant difference of attitude among professionals (3.42), editors (3.51), and professors (3.72). Comparing the support rate for this question to those for the first three questions, it is fair to argue that editors, news professionals, and professors emphasized the importance of cross-media training more than that of specialization, though they believed that specialization should not be neglected either.

Currently, students in many J-schools specialize in one area by subscribing to a sequence such as news-editorial, magazine, photojournalism, and broadcast. When asked whether sequences should be reorganized considering the trend of media-platforms merging in the industry, 56% of the professors agreed or strongly agreed, 22% were not sure, and another 22% disagreed or strongly disagreed. The concept of sequences is being shaken among professors though it is still being accepted as a legitimate means of training students in various specialization areas in some J-schools. Speaking on behalf of herself and her colleagues, Professor #93 offered some special insight on this issue:

> We can't teach for the "now." We have to prepare students for when they graduate...which in most instances is now five years out. And, we feel a commitment to expose them to all types of writing in all platforms so they can be

> flexible about their career choice at the front end of their academics. Then, they can apply the skills to a specialty area where they are totally proficient.

"Flexible" is a key term repeatedly seen in editors' and news professionals' textual answers as a suggestion for future journalists. Editor # 211's statement is typical:

> Our job descriptions are open ended and new hires understand that they are being hired for their skills. They may be hired today to cover the city beat. In six months or in two weeks, if necessary, a person with Quark skills may be asked to fill in or shift duties to include pagination of a particular section. It is important that hires stay flexible.

The new hires, wrote Editor #259, "need to understand that the information they gather and process can have many different uses, audiences and shelf lives. They need to understand the complexities of the audience mix and be able to respond." "Those unwilling to be flexible may find themselves in a difficult scenario later in their careers" (Editor #199). From a different perspective, Professional #474 concurred: "Students must be flexible, have a vigorous skill set and be prepared to get laid off and move around in the changing media arena." In short, "young journalists must be prepared to fill a variety of roles if they hope to succeed" (Editor #210). "The most successful journalists are those that take on assignments willingly, can learn and want to learn" (Editor #211).

Specialization in journalistic jobs is still honored, but is losing its favor to cross-media capability in converged media. Today, professionals with different specializations team together to work on multiple media projects. Tomorrow, it is likely that one-man bands will be more and more desired in converged newsrooms.

2. How should J-schools balance the teaching of critical thinking and that of technical skills?

Most respondents (93%), especially professors, agreed or strongly agreed that journalism students should learn both technical skills, such as online information search, and Web design, while learning critical thinking skills in media law, ethics, etc. One-way ANOVA shows significant difference among the means for professionals (4.35), editors (4.38), and professors (4.76) ($F=18.86$, $df=2$, $p<0.001$). Tukey HSD post hoc tests show that professors were more positive on this point than editors, and professionals, while no significant difference existed between editors and professionals.

But, should journalism students spend more time on learning critical thinking skills than on technical skills? Opinions were divided. More than half of the respondents (62%) believed that should be the case, but 19% of the respondents were not sure and another 19% of them did not agree. One-way ANOVA shows significant difference among the means for professors (3.21), professionals (3.87), and editors (4.3) ($F=48.14$, $df=2$, $p<0.001$). Tukey HSD post hoc tests show that editors were more positive on this point than professionals, and professionals were more positive than professors.

Throughout all the answers from the three groups of respondents, critical thinking was highly regarded as being more important than technical skills. Editors, news professionals, and professors all liked to see good stories, and good stories come from good thinking ability. An editor said: "Journalism graduates need to have a broad, well-rounded education; be critical thinkers; have the ability to write clearly; have a serious work ethic; and know computer basics — in that order" (#177). "You can teach a monkey to type," echoes a writer. Therefore, he strongly suggested that J-schools "get more critical thinking skills pounded into the skulls of the students" (#358). While highly emphasizing the importance of critical thinking ability, respondents did not mean to neglect the importance of teaching technical skills in schools. Comparing the professors' highest mean for the first question (4.76) and their lowest mean for the second question (3.21), it is clear that professors saw critical thinking as highly important, but preferred a comparatively balanced approach for the teaching of the two sets of knowledge. One professor's comment illustrated this observation:

> Knowing technical skill alone will not make you a "good" journalist. Critical thinking is vital not just to a career but to life itself. Without developing your ability to discern and evaluate, you will become "the prey" of society. Next, a technical skill is critical to a career in journalism today. Even print journalism is very high tech these days and all electronic media require extensive computer knowledge as well as other technical skills. I would place critical thinking skills first on your list of things to do because a developed mind will make it that much easier to develop a creative and technically sound understanding of the technical side of the business (#76).

From a holistic view, there was no substantial disagreement between classrooms and newsrooms when we examine the issue of teaching critical thinking vs. teaching technical skills. Compared to Terry's 2000 poll, this study shows that professors gave a higher status to technical skills in journalism curricula in 2002 than they did in 2000. This is a period during which media convergence garnered its momentum. In short, all respondents generally agreed that J-schools should place emphasis on teaching critical thinking, but at the same time, should not neglect teaching technical skills.

The professionals' general preference, to some extent, also reflected their need for technological update at their current positions, so that they can better qualify for multimedia productions.

3. Should technical skills be learned at work or in school?

To cross-check and extend the findings from the last several questions, news professionals were asked, "If you wish to possess the technical skills you don't have now, do you prefer to learn them at work or wish you had learned in school?" Editors were given the same question with a slightly different wording.

Figure 1: Where should news professionals learn new technical skills?

	Had learned in school	Learn at work
Editors	63.5%	36.5%
News professionals	29.2%	70.8%

Chi-Square test shows that the difference between editors and news professionals was significant (Pearson $\chi^2=29$, df=1, $p<0.001$). This finding well supplements the findings from the preceding questions. It suggests that editors not only valued news professionals' critical thinking ability, but also hoped that the latter would have already possessed the skills needed in a converged newsroom if they were hired. On the other hand, most professionals preferred that they would be provided opportunities to learn multiplatform reporting skills at work. This finding shows that many news professionals were not well prepared for multiplatform reporting but they badly need such skills in their daily work. The comparison between the editors and news professionals' responses suggests that J-schools should be the incubating ground for technologically cable professionals for converged media. Many editors and even reporters said that school is the best place for journalism students to explore every facet of the media and acquire basic technical skills, though some advanced skills can only be learned on the job.

Learning skills while in school, they said, can build confidence and an expansive and broad understanding of the entire field (Editor #301) and help with damage control and communication in newsrooms (Editor #452). "If editing and the technical skills were more prevalent in college courses," wrote a multi-tasking editor (#485), "I think I could stave off a lot of headaches when the students become professionals."

An internship was the news professionals' and editors' most recommended venue for enhancing and learning more technical skills and gaining other practical experience. Reporter #453 said: "While I value my college education, my internship and first job provided me with the most valuable skills today." Another reporter (#469) said: "While education is great, students who work in media while in school fare much better in the real world." Some editors had complaints about graduates with a 3.5 GPA but no practical experience and no published news work. An anchor/reporter said that it is important even "for a freshman or sophomore in college to visit a newsroom and shadow someone. So many students wait until they are juniors and seniors to do this and then they realize they made a mistake in selecting their major. You will learn more by watching and doing" (#472). One reporter said, "To remain competitive, education must continue throughout a career" (#289).

The implication of the discrepancy from this finding suggests that J-schools should place emphasis on teaching critical thinking, expose students to new technology, and design a comprehensive internship program for students to gain real-world knowledge and further develop their cross-media technical skills.

4. How are J-schools coping with media convergence?

From 1998 to 2002, about 60% of the J-schools in the United States redesigned their curricula or developed new courses to prepare students for practicing news in multiple media platforms.

A typical journalism professor was a man (71%) between 46-55 years old (42%) with a doctoral degree (63%) who worked in news media for one to ten years (48%), may still be practicing news (45%), and conducted academic research (66%).

More professors claimed that they were theoretically equipped (81%) than technologically prepared (53%) to teach students how to do multiplatform reporting. More than half of the professors (57%) had not taught any journalism courses in the last five years where skill sets were beyond their own expertise; 25% of the professors taught one such course and 11% taught two. Nevertheless, the majority of the professors (84%) added content about media convergence either to their existing courses or to new courses or participated in cross-media team-teaching in the last five years.

Worries, concerns and, sometimes, misconceptions about media convergence appeared in professors' textual answers. For instance, a professor from Montana said: "convergence is not happening" (#19). A professor who no longer practiced news said, "In my judgment, the writing portion of preparing news for print and for the Web is exactly the same" (#30). Another professor maintained that it was not necessary to teach cross-media news practicing because "few 'want ads' for newspaper reporter and editor positions specifically listed multimedia platform skills as required or preferred experience for new hires" (#33). Many professors worried that media mergers would restrict the number of voices in a community. They regarded media mergers as a grand experiment in the profession and waited for the FCC's ruling on the cross-ownership of different media in the same market.

Wait-and-see—that was the strategy some universities took for teaching media convergence. One professor said that he needed to see the substantive contribution media convergence could make before he would be more serious about this phenomenon. He said that J-schools should be cautious about embracing convergence (#56). Some other universities didn't have the time and resources to teach convergence courses (Professor #95) or make major curriculum changes (Professor #138).

Most professors, however, did believe that media convergence was a reality; and "anybody serious about practicing media needs at minimal an acquaintance with various media and at best multiple competencies," as Professor #118 said. Many professors (and editors and news professionals as well) had a clear opinion as to which comes first, teaching critical thinking or teaching technical skills. While acknowledging the need for incorporating media convergence content in curricula, especially the technological components, professors cautioned against sacrificing conceptual and theoretical courses such as law, ethics, history, cultural studies, critical perspectives, etc. Professor #43 analogized critical thinking as meat and potatoes and technical skills as dessert and side dishes and argued that "the meat and potatoes need to come before one begins to worry about the dessert and side dishes (or side shows)." This viewpoint was popular. Professor #58 wrote:

> It's the message, not the medium, that is of paramount importance. If students cannot understand and appreciate the underlying concepts, principles and ethics of journalism, then they cannot produce the type of content that will be of value to a free society. A thorough grounding in journalism must come before any training in tools. The tools are means to an end, not the end in and of themselves.

Incidentally, a reporter had similar thoughts:

> The medium isn't the message, the message is the message. In short, the fundamental analytic and synthetic skills of the news writer are paramount to the message. The medium does not alter the reporter's craft of interpreting news events in the context of the society in a way that will make sense for the receiver of the information (#371).

We fully understand why these respondents emphasize the teaching of critical thinking and the fundamentals of good reporting over the teaching of technical skills and we strongly agree with their opinions. But, we also see the danger of over-stretching the point by treating the two sets of knowledge as two opposing poles. Those arguments are based on the presumptions that message and medium can be easily separated, content and form can be detached, and readers for different media are from the same and similar population. But, is that right? It is true that content is the king. It is true that "the medium does not alter the reporter's craft of interpreting news events." News practice, however, is not only about news-gathering and writing. It also includes production, editing, and delivery. Without a solid grasp of grammar and style, how can a writer effectively express his/her good analytical thinking? Without knowing the available features and limitations of online news delivery, how can messages be constructed to their fullest potential? Without understanding the technical difference between video news and print news, how can messages be constructed appropriately? In the digital era when almost all steps of news transmission involve technology, if professors don't teach students technical skills, will the computer majors who know little about journalism be expected to produce newspapers, TV news, and online news? Writers, for instance, do not necessarily have to be conversant in constructing news reporting with Flash for online presentation or know how to operate a video camera to shoot video stories. But knowing the principles and rules of news video-taping and what Flash or other software can offer will surely help writers more effectively convey their messages and better cooperate with visual reporters. Creativity distinguishes artists and artisans. Critical thinking ability distinguishes master journalists and technical writers. But artists must first know what artisans know and a master journalist must possess all that a technical writer knows for a living. Skills are intrinsic instead of extrinsic to ideas. Teaching critical thinking and teaching technical skills are not mutually exclusive. Teaching journalism students how to express their critical thinking with conversant technical skills in different media seems to be a big challenge for J-school professors in the years to come.

From the professors' textual answers, we have observed different philosophical approaches to teaching convergence. Unlike some professors who took the wait-and-see approach, a professor from the University of Texas at Austin claimed that "convergence is already happening, and journalism schools should be leading the parade and not following it" (#151). A popular viewpoint was that "skills across platforms must be taught, but more importantly storytelling, ethics, and critical thinking skills should be even more important in the journalism school curriculum" (#129). One professor from Texas Christian University said that it maintained the existing sequences but required broadcast students to take print courses and vice versa (#66). Team-teaching was an often-used approach in some J-schools such as Indiana University for courses involving multiple sets of skills while professors learned from each other. Another professor, from the University of Colorado at Boulder, said convergence meant that "students work together to produce multimedia content for the Web — not that each individual should attempt to become proficient in all media" (#410). To overcome the hurdle of the ratio limited by the ACEJMC accreditation standards between journalism courses and liberal arts courses, a professor from Bowling Green State University suggested that journalism undergraduate students stay for five years and devote the fifth year entirely to practice (#392). Some professors said that journalism students only need to know a little about the practices in media other than their own, while some other professors firmly maintained that students should "be the master of many arts and the explorer of all" (#155).

Conclusions

The legitimacy of media mergers needs repeated tests before such mergers can be truly accepted as a healthy development and a full-force education of media convergence can be seen in many in J-schools. Nevertheless, media convergence has posed both challenge and opportunity to J-schools for them to reconsider their current curriculum design, sequence setting, faculty composition, teaching methods, and internship approaches. Dealing with media convergence in college journalism education is an urgent necessity. The wait-and-see strategy will place a J-school in a disadvantaged position over the long run.

The study shows that J-schools should continue to teach critical thinking courses and meld critical thinking components into the teaching of all courses. Critical thinking is the cornerstone of journalism education. However, technology courses or course components should also be given the status they deserve. In other words, there should be a balanced curriculum to include both kinds of courses, and many cross-media related courses should contain both components. An ideal curriculum should balance the load of technical skill-based courses and critical thinking courses, weighting toward the latter. Critical thinking and technical skills can go hand in hand rather than being competitors for class time. A balanced curriculum can help students better gather, produce, edit, and deliver quality news, more creatively and professionally materialize their ideas and make them better fit into the market, especially in an economic downturn. A carefully designed internship program can best enhance students' technical skills for them to work in a converged environment.

University of Florida professor Melinda McAdams, one of the *Washington Post*'s first online editors, told colleagues that if colleges don't teach journalists the technical skills they will need, no one else is likely to take on the responsibility (Paul and Ruel, 2001). "[T]he reality they'll face in the world is they'll have to teach themselves" (Ibid.). The classroom should be the first stop for students to at least get exposed to and get familiar with the technology for cross-media practices, though they can become more proficient with such technology through internship and their future jobs. With all that said, technology courses should not dominate journalism students' education, and technology should not be taught for the sake of technology. Technology must serve the purposes of doing good journalism.

Many respondents point out that the teaching of technology should not be at the expense of the teaching of critical thinking. Many J-schools have no more elective hours for students to learn cross-media technology within the existing parameter of curriculum. For such schools, curriculum redesign is a necessity. Though some J-schools such as Indiana University School of Journalism have eliminated sequences to provide a comprehensive education to all journalism students, we expect that sequences will continue to exist for some time in some other J-schools. However, it has become increasingly important to encourage students from all sequences to learn technology and reporting skills from other platforms. Sequences in many J-schools are regarded as dinosaurs because it no longer makes sense to teach broadcast and newspaper, for instance, as two unrelated bodies of knowledge in the era of media convergence, and students can opt for a specialization without sequences but with professors' advice.

Most respondents expect that future journalists will be competent in producing news in multiple media platforms while being particularly strong in one area. It appears that students will be prudent to opt to specialize in either print or television and take several electives in a secondary platform, either radio or online journalism. Versatility and specialization should be equally important.

The majority of the editors do expect that future writers will be able to and willing to write for multiple media platforms, and photographers and designers will create multimedia visuals, though such expectations will not be converted into requirements in job ads for a while because "too many newsroom dinosaurs have to die off first," as Editor #278 put it. But chances are they will, as Nelson (2002) predicted. Most editors even expect that new hires will possess multiple sets of skills to become "superhack masters of multimedia," to use Gates' term. The needs are out there, but whether the training of such superhack masters will become the norm, as Gates questioned, largely depends on whether J-schools are willing to and able to develop those "avant-garde" courses. Apart from the technological aspect, students also need to learn to cooperate and collaborate across newsrooms so as to bridge different newsroom cultures. Students need to be both theoretically and technically prepared for media convergence.

The findings from this study show that more than half of the J-schools in the United States have redesigned their curricula or developed new courses to cope with media convergence, but professors need to be better prepared technologically. Team-teaching is one approach to solve the problem, but will the teaching of media convergence be more effective if a professor at least knows as much as a student in a convergence class will learn? Does the Gestalt psychological principle "the whole is more than the sum of its parts" also apply in such a context? Professors normally learned little or no technical skills while studying in J-school doctoral programs. Their technical knowledge inherited from their previous media experience is easily dated. More than half of the professors (54%) no longer practiced news after they began to teach, as we found out in this study. In some cases, professors know less technical knowledge than their students do. Therefore, in the middle of heavy teaching, research, and services, updating and learning more technical knowledge for teaching convergence is a big challenge for many professors. Getting tenured professors to do so is even a bigger challenge. Learning from each other during team-teaching is, of course, a good way of learning, but professors also need to find time to do self-teaching to gain more in-depth knowledge. J-schools should provide financial support for professors to attend new technology workshops. Being exposed to or involved in community news reporting in a multiple-media-platform environment, if possible, is an even better way of learning new technology for professors.

Media convergence is a comprehensive topic. Many sub-topics related to this study are yet to be explored. For instance, how can the general public benefit from media convergence? Does the general public in markets where media are converged think that they are less well-informed and that democracy has suffered in their areas? How can news professionals benefit from media convergence? What are the typical differences between the career lives of the news professionals in converged media and the career lives the same news professionals led before the media were converged? We call on mass communication scholars to continue to study media convergence to shed more light on this phenomenon that will affect every one of us.

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[1] Instructor David Swartzlander from Ball State University said: "There doesn't seem to be information or textbooks on how you go about teaching this (media convergence). We need to be better trained." See Erb, 2001.

[2] For instance, Jenkins (2001) distinguishes among five types of media convergences: technological convergence, economic convergence, social convergence, cultural convergence, and global convergence. Carr (2002) summarized seven levels of cooperation in the News Center: daily tips and information, spot news, photography, enterprise reporting, franchises, events, and public service. From the perspective of telecommunication, Moon (2001) identified technological convergence, market convergence, and regulatory convergence.

[3] For instance, the *St. Petersburg Times* and the local Channel 10 in St. Petersburg, FL have shared news content though they are independent business entities.

[4] A decade ago, a special issue of Journalism Education: Visual Communication Study and Teaching, attempted to identify central issues in defining visual communication education. A central question posed in the volume was whether the study and teaching of visual communication should simply reflect traditional skills areas of the mass media industry or should be taught as an academic and intellectual activity. The volume suggested that visual communication should be taught both as an intellectual and skills activity (Abraham, 2001).

[5] Bulla's Appendix 1 shows that nine out of ten of his survey questions were open-ended.

[6] To make writing succinct, we will use "J-schools" to refer to all such variety of naming in the rest of the writing.

[7] The sites we consulted include

- ACEJMC Accredited Programs, 2002-2003 at http://www.ukans.edu/~acejmc/STUDENT/PROGLIST.SHTML
- Journalism Schools in the United States at http://www.vcsun.org/~chanter/resources/j-schools.html,
- U.S. Journalism/Communications Schools at http://www.journalismjobs.com/general_links.cfm

[8] The timing of the survey could have caused the comparatively low response rates for editors and news professionals. The survey invitation emails went out approximately ten days before Thanksgiving, which coincided with the sweeps period for television stations. Another possible cause was that emails for many editors and news professionals especially in TV stations were nowhere to be found on their Web sites, and invitations had to be sent via generic emails, which could be easily deleted or neglected.

[9] In our data sheet, "Strongly Agree" is coded as 5 and "Strongly Disagree" as 1.

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Facing the challenges of convergence

Media professionals' concerns of working across media platforms

Edgar Huang
Karen Davison
Stephanie Shreve
Twila Davis
Elizabeth Bettendorf
Anita Nair

Department of Journalism and Media Studies
University of South Florida St. Petersburg

Edgar Huang
140 7th Ave S, FCT 230 USF
St. Petersburg, FL 33701
727-553-1047
huang@stpt.usf.edu

* We thank Andrew Meacham, Javier Molinos and William Graveley for their involvement in the data collecting for this study.

Coming of Age in the E-Generation: A Qualitative Exploration of How Young People Use Communication Technology for Identity Building and Social Interaction

By

Sally J. McMillan, Assistant Professor, University of Tennessee

Margaret Morrison, Associate Professor, University of Tennessee

(both authors are associated with the Department of Advertising)

Submitted to the annual 2003 AEJMC Convention

Communication Technology and Policy Division

Contact first author at:

476 Communication Building
Knoxville, TN 37996

e-mail: sjmcmill@utk.edu
phone: 865-974-5097

Coming of Age in the E-Generation: A Qualitative Exploration of How Young People Use Communication Technology for Identity Building and Social Interaction

Abstract

Analyzing autobiographical essays written by 72 young adult college students, this study investigates how coming of age concurrently with interactive technologies has influenced their identity building and social interaction. Using a grounded theory approach, four axial themes (defining self, defining community, social interaction within the family, and social interaction with others) and two selective coding categories (duality and dependence) emerged to offer some insight into what it means to grow up in the E-generation.

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In the 1980s, "interactive" technologies began to proliferate. These ranged from video games to proprietary computer-based communication systems such as CompuServe and Prodigy. Interactive television envisioned for the near future promised play-along game shows and 500 channels of television on demand (Pavlik, 1998). During this period, the Internet grew beyond its research roots. In 1989, the World Wide Web was developed by the European Particle Physics Laboratory (CERN) and in 1993 became more usable with the introduction of Mosaic, the first Web browser (Leiner et al., 2000).

While these technologies were developing, a generation of young people was coming of age. A recent study of America's college class of 2001 reported that these young people, most of whom started grammar school in 1985 and high school in 1993, were now almost 100% connected to the Internet. Their Internet usage increased from six to 11 hours per week between their freshman and senior years in college (Miller, 2001). These young people who came of age as interactive technologies matured have been called the n-generation because networking is second nature to them (Tapscott, 1997) and the e-generation because they are connected to all things electronic (Boiarsky, 2002). This generation "may well be more literate, creative, and socially skilled because of their early familiarity with the Internet, including trying out various aspects of their developing identity online" (Rice, 2001, 124).

But thus far, few studies have examined the social impacts of interactive technologies on the e-generation. While some studies have gathered data that show these young people are heavy users of interactive technologies (Johnson, 2001), and other studies have explored specific behaviors such as online dating (Clark, 1998), Buckingham argued that research has not yet provided much information about how young people "perceive, interpret, and use new media. As in the case of television, much of the research has been preoccupied with the search for evidence of negative effects; and much of it has been based on implicitly behaviorist assumptions" (Buckingham, 2002, 79).

Our study seeks to go beyond reporting statistics of young people's media use, and behaviorist assumptions will be largely ignored. The primary question addressed is: What can the e-generation tell the rest of society about how coming of age concurrently with interactive technologies has affected their lives? In particular, how did these technologies influence their identity building and social interaction?

This study seeks answers to those questions in autobiographies written by young people who represent a first wave of the e-generation. Most were in grammar school or high school when the World Wide Web became widely available. Many grew up playing Nintendo. They are on the cusp of adulthood, yet most are close enough to childhood to remember it well. By telling their own stories they open a window into their past and present use of interactive media. Furthermore, members of the e-generation "are tomorrow's shapers of society" (Miller, 2001).

LITERATURE REVIEW

The topics of identity building and social interaction are represented by a wealth of literature. Reviewing all of that literature is beyond the scope of the current study; however, a few studies that directly address the ways that communication technologies, such as computers and the Internet, help shape identity and social interaction are discussed below.

Identity Building

The popular press has often painted a picture of the Internet as a new place where individuals can go to re-create themselves. Men can pose as women, adults can pose as children, and introverts can speak their minds. Byam, a leading scholar in the field of online interpersonal relationships, noted that: "The extent to which people use CMC as a means to invent new personas, to recreate their own identities, or to engage in a combination of the two and the ways in which they do so are issues central to the construction of a computer-mediated social world" (Byam, 1995, 156).

While there is no doubt that these kinds of identity experimentation do happen online, this use of media for building alternate identities may be less important than the ways in which computer-mediated identities cross over into "real life." Several studies have provided evidence that online identities are not substantially different from those developed in the offline world. Moon and Nass (1996) found that people respond to computer personalities in the same manner as they respond to human personalities, and that users often consider computer personalities "real." Another study found that children's real worlds and virtual worlds are mutually constituted. Children build both private and public identities through their interactions on the computer screen. Their online lives are no less "real" than those they live offline (Valentine & Holloway, 2002). Another study found that in the context of online dating sites, the disembodied anonymity that characterizes the Internet acts as a foundation for the building of trust and establishing real world relationships rather than the construction of fantasy selves (Hardey, 2002).

However, there is also evidence the Internet can facilitate new concepts of identity. For example, the writing and rewriting of self-narratives is a common feature of writing on the Internet (Hardey, 2002). Turkle reported that through interaction with computer technologies, young people have begun to see their self-images as multiple and fluid. They can present multiple self-images both online and in other life situations. While this may seem disturbing to adults, young people who have grown up with a multitude of communication technologies seem to be able to adapt with relative ease (Turkle, 1997).

In addition to defining self, communication technologies also often influence definitions of community. Holloway and Valentine (2000) reported that children are active in the construction of their own life-worlds, interpreting and making sense of the communication technologies within the context of their own "local" cultures of computing. They noted that the processes of shaping (and being shaped by) use of communication technologies were simultaneously global and local, material and ideological.

Community norms can also help shape definitions of technology and vice versa. For example, when members of a community typically viewed technology as a public good, they were more willing to invest in technology infrastructure. When individuals defined their community virtually rather than geographically they were less likely to be involved in civic activities (Borgida et al., 2002).

Social Interaction

Young people may sometimes venture into virtual worlds that separate them from their real-world social interactions. Slater (2001) reported that the new media has been studied less for their uses within existing social relations and practices and more as a new social space that constitutes relations and practices of its own. However, some research suggests that more typical uses are for maintaining contacts with friends and family and to form online communities with like-minded peers (Johnson, 2001). Other studies have also suggested that online social life mirrors offline relationships in many ways. Computer activities provide support for offline friendships, are mainly devoted to ordinary yet intimate topics (e.g., friends, gossip), and are motivated by a desire for companionship (Facer, Sutherland, Furlong, & Furlong, 2001; Gross, Juvonen, & Gable, 2002).

Riva and Galimberti (1998) presented the positivistic view that new media genuinely enhance communication and social interaction. But other researchers have found some negative social consequences: men and women experience somewhat different online social worlds (King, 2001), the medium can increase power inequalities (Spears, Postmes, Lea, & Wolbert, 2002), and introverts become more introverted online (Kraut et al., 2002).

In short, the jury is still out on relationships between computer-mediated communication technology and social interaction. Some researchers see it as separating us from our offline relationships; others have found that it simply enhances relationships that already exist offline. Some suggest that it offers a bold new way to break through social barriers; others suggest that those who are good at offline social interaction will also excel in online interactions while those who feel lonely and alienated in their daily lives will experiences those same negative feelings online.

METHOD

Analysis of documents has a long history in the social sciences. Hodder (1994) notes that written evidence endures physically. As such, it can be separated across time and space from its author. Documents are an important data source for qualitative researchers because the information they provide may differ from, or not be available in, spoken form, and because the enduring nature of the texts offers opportunities for historical insight. In essence, documents may generate rich data not available through more traditional quantitative approaches such as surveys or experiments.

One such type of document is the narrative account, in which persons write reflective accounts of experiences in their lives. The human capacity to recall and reconstruct past personal and social experiences is unique among earth's species. Interpretive sociologists suggest that the ability to remember past experiences is particularly associated with epiphanies – those unique experiences that form milestones in the human life (Denzin, 1989). Relevant to the current study, narrative, accounts were examined in order to uncover insight into historical milestones associated with interactive media use.

The narrative account used in this study took the form of autobiographical essays written in response to broad question areas. Researchers contend that life histories (as autobiographies are also known) help capture the evolution of cultural patterns (such as media use) and how those patterns are linked to the lives of individuals (Marshall & Rossman, 1989). They also provide contextual evidence that helps situate these cultural patterns into social frameworks. Because the goal of the current study was to gain insight into the role of new media technologies in helping young people build identity and engage in social interactions, this contextual evolution was vital.

Theoretical and applied research on autobiographical memory has been used extensively in psychology (see for example Thomson et al., 2002), although its use among communication scholars is rare. Nevertheless, researchers have used this technique as far back as 1933 to study human interaction with media (Blumer, 1933). Three recent studies adopted this research method to contemporary media settings; each of these studies used students as a focus of study. Barnhurst and Wartella (1991) examined life histories in which students provided information about their experiences with newspapers. Spangler (1989) explored American students' experiences with television. Aidman and Ginossar (1998) studied Israeli students' television experiences.

College students are an ideal study group for life histories of interactive media. They are young adults whose memory of childhood and teenage media use is relatively fresh but who are mature enough to have started building lifetime patterns of media use. And, as noted previously, this group's formative years correspond to accelerated growth and usage of interactive technologies. In essence, the lifespan of college students parallels the diffusion of many interactive media technologies, suggesting that their use of, and exposure to, these technologies may greatly affect their social interactions and self-image.

Data Collection

Between 1998 and 2000, a total of 72 undergraduate and graduate students in communications were asked to write about their personal histories and experiences with interactive media. Characteristics of the participants can be found in Table 1.

This assignment was adapted from the Spangler (1989) and Aidman and Ginossar (1998) studies. Concepts from the Barnhurst and Wartella (1991) study were also adapted for the assignment. Whereas those studies dealt with a specific media technology (television or newspapers), the current study used the broad term "interactive media" when asking students to write their autobiographies of media use. No definition was provided for this term. Instead, informants were encouraged to think broadly about experiences they had with any medium that they would define as interactive. Most informants chose to write about the Internet and related technologies, but some also wrote about their use of other interactive media – most notably video games and the telephone. A few included ways that traditional media, such as radio and television, can be interactive. However, because the focus of the study is on technologies that "grew up" at the same time that these young people did, the findings reported below focus primarily on computer-mediated communication such as the Internet, e-mail, World Wide Web, and video games.

In the portion of the assignment relevant to the current research, students were asked, but not required, to consider the following when constructing their essays:

- What role did/does interactive media play in your home life?
- What attitudes do the significant other people in your life (e.g., parents, siblings, classmates, etc.) have about interactive media? How do their attitudes impact your use of interactive media?
- What are your favorite uses of interactive media? Think about how your use of interactive media has changed from the time you began to use it until now. How do you feel about those changes?
- Think about how interactive media have affected you with regard to social behavior, knowledge of the world, knowledge of your country and knowledge of your community.

Analysis

This study employed a systematic analysis procedure of written documents and incorporated techniques described by Glazer and Strauss (1967) in their seminal work *The Discovery of Grounded Theory*. Hodder (1994) notes that documents, while close to speech, require a more contextualized interpretation. Corbin and Strauss (1990) contend that qualitative methods, like their quantitative cousins, can be systematically evaluated. Using inductive qualitative analysis, autobiographical accounts were examined to integrate informants' reflections and perspectives into a general conception of the social uses and meaning of interactive technology in their lives. These accounts provide the data by which to generate grounded theory, a process of linking and relating subcategories of behaviors and interactions by denoting conditions, context, strategies, and consequences. This procedure was conducted in three steps.

The first step, open coding, involved compiling all 72 accounts into a single computer file. This process resulted in 271 double-spaced pages. Data were then broken down into units of information that could be systematically sorted. Two researchers, working independently, reviewed the autobiographical accounts line by line, looking for common themes in passages that were relevant to the research questions. This process resulted in 6,365 unique data specimens ranging in length from short phrases to entire paragraphs; of these, 1,601 were relevant to the focus of this study. The data specimens were then manually sorted and conceptually grouped together by themes. Both primary researchers coded all the data and compared and discussed the concepts that were developed. The researchers found that they were in substantive agreement about what was unfolding in the data.

The second step, axial coding, involved classifying the themes into categories. At this juncture, the researchers looked for relationships among the open coding categories, noting links and patterns. By grouping like descriptions and ideas together and considering intervening conditions, patterns emerged from the data. These categories were determined inductively by evaluating each unit of information through a method of consistent questions and constant comparison as described by Berg (2000) and Strauss and Corbin (1990). This step resulted in four major categories.

During the final stage, selective coding, the axial categories were related to one another by examining the conceptual categories and determining how they related to one another. In essence, the researchers were looking for the central themes or ideas that emerged from the aggregate of concepts (selective coding). At this stage, two overriding themes were developed. These themes provided insight into how interactive communication technologies are shaping the lives of young people who are coming of age at the dawn of the "e-generation."

FINDINGS

As noted in the previous section, the first phase of analysis, open coding, resulted in 1,601 data specimens. Obviously, space limitations preclude a detailed discussion of this voluminous data set. For that reason, the findings reported below focus on the axial and selective coding stages of analysis.

Axial Coding

For the current study, four axial codes were identified: defining self, defining community, social interaction within the family, and social interaction with others. One or more of these axial coding categories applied to a total of 1,601 of the original open coding units. Axial coding categories are briefly presented below as if they were discrete ideas. However, there was a great deal of interplay among these topics. For example, many informants provided examples of ways in which they defined themselves through their communities and their social interactions.

Defining Self

Essays frequently discussed ways in which informants, their friends, and their family members define themselves by using interactive media. For many, learning to use the Internet and related technologies was a kind of "coming of age" ritual. One informant told about how his younger brother defined himself through interactive media use:

> *My 18-year-old brother, Mark, has developed in the short time he has had home Internet access a propensity to frequent a chat room entitled "Gen-X." He already has a regular nickname, much as CB radio users have handles. He calls himself "Insane Marcos," and I believe real life mirrors fiction in his case. He does everything the news media say people do in chat rooms, exaggerating his height and changing his hair color. He is also a rather shy person in real life, a characteristic he sheds when engaged in the anonymity of the Internet and e-mail (Brian).*

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While some informants found the Internet allowed for the creation of a new persona that could be accepted "as is," others found that the new self they had developed through their online activities was alienated in some ways from others in the real world. One young woman wrote:

> *The ironic and somewhat comical part of my rapture with the Web and things interactive is that few of my friends and family members really know or understand how far reaching and powerful it has become. They may know, for example, that I have a job that has something on the Web. They may also know that I check my e-mail more often than they do. Perhaps they have heard me mention the Website I built for an art teacher's group. But usually that's about it (Terri).*

For many informants, the experience of developing themselves through online media use was primarily positive. Some saw it as almost a natural and necessary part of human evolution: "*I think people were born to enjoy interactivity and love communicating interactively" (Park).*

However, for other informants, defining themselves through their online media experience was much more difficult and frustrating. They often reported feeling intimidated by others who knew more about the technology than they did. This sometimes led to feelings of inferiority: "*The fact that I did not feel comfortable using computers while most of my classmates used them with great ease, made me feel mentally inferior" (Thea).*

The customizable nature of Web-based communication provided some informants with ways of further defining themselves and reflecting that self-identification through their media use: "*While I check my email account, I can obtain customized information. My own homepage functions as the coordinator of my life" (Park*).

Definition of self was also often expressed in terms of access to a broad range of news, information, and interchange: *"I am able to directly communicate with people from other countries or access their resources as well as those from my own country. The medium has broadened my horizons with regard to the world around me" (Sharon).* Sometimes the access to external world views made self-definition more challenging: *"Everyday I am presented with someone's views on politics, world peace, and culture that sometimes I have to step back and remind myself what my own opinions are" (Fred).* For some, the opportunity to easily seek out non-dominant world views, had a major influence on defining who they are:

> *The Internet has changed my life. I now almost exclusively buy organic foods. I no longer eat red meat because of information I retrieved off of the American Medical Association's Web site and from sites authored by various environmental organizations. The Web introduced me to my favorite intellectual, Noam Chomsky, who forever altered my perception of the world (Brian).*

Defining Community

Using interactive media not only helped these young people define themselves, it also helped them define their communities – both real and virtual: *"This new medium has had a profound effect on how I view the concept of community. It has become so easy to create a new community, or find a community that is centered around a specific interest, hobby, or belief that you may have" (Lisa).* One young woman explained how a specific health issue has served as the catalyst for a community that affects her online and offline reality:

> *I am an active online advocate of scoliosis research and education, which I got involved with after joining a listserv for scoliosis patients like myself.... I email Congress members and hospitals on a regular basis to push for funding and studies on spinal surgery or I correspond with teenage girls who are scared or worried about their scoliosis and want to hear from someone who survived it. Before getting involved with the scoliosis mailing list, I was never a participant in any type of social movement. The Web enables me to spread a message far and wide with great ease, which I think is the major impediment for many people who want to be involved with a cause, but don't have the time or the means by which to do so (Terri).*

Many informants reported that the Internet had expanded their world view and made them recognize they are part of a global community: *"Being part of the ever-growing connected world has given me a humbling sense of how small each one of us is when put in the context of a global communications network" (Park).* However, many informants warned about the potential downside of communities that were defined by technology and interests rather than geography and relationships: *"This type of community should not replace basic social interaction. We cannot become glued to our computers and forgo all other human contact" (Lisa).* Another informant reported that she had become worried about the financial health of the bookstores in her local community and had started supporting them more instead of shopping for books online: *"I now make a point to buy at least half of my books from small, independent bookstores in my hometown" (Karen).*

An interesting sub-theme that occurred frequently was the expressed belief that the informant was "just like everybody else" in terms of computer use. In other words, by virtue of their technological capability, they become part of an elite community: "*Once I had my connection and e-mail account I felt like I was living in a small elite and had to exploit this great opportunity I was given" (Sophia).* One informant expressed this concept in terms of how his generation had evolved together because of their common media use experiences:

> *Since they [friends] too are part of my generation, we have all shared in similar experiences, and deal with the same aspects of interactive media daily. We have all been in college to see the almost overnight change from card catalogue files, to the now online card catalogue. It happened so fast that when I ask them, they cannot remember when the sudden switch actually took place (Chris).*

Many informants expressed the idea that their community and/or society was defined through technology – almost a technological determinism. Even language is changing: *"Our pop-culture lingo has been affected by the use of the Web, with such terms as e-commerce, e-check, e-business, downloading, uploading, etc." (Esther).* Whereas radio had defined their grandparents' generation and television their parents' generation, they were defined by the videogames they played as children and the Internet connections they maintained as young adults. One young man wrote: "*Video games were always a part of my life growing up. The kids with the newest games were always the hit of the neighborhood and between games of sandlot football we would play video football" (Jason).* Another young man reported that he had "graduated" from video football to fantasy football where he has joined a new online community of people who share his interests:

> *I use e-mail frequently throughout the week to send in lineups for my fantasy football league. The league is set up through a Web page so it basically requires me to use interactive media if I want to participate in the league. I have made fantasy football a hobby and I probably spend 3-4 hours a week looking for information about it (Joe).*

International students explored ways in which technology enabled them to participate in their "home" community while studying abroad. This kind of virtual community participation ranged from the routine reading of newspapers in their native language to real-time chat with friends at home. One informant wrote: *"Without the WWW, I would have to make a great deal of effort to come up with the changes in Korea during my absence upon returning to Korea someday" (Lee).* But, by staying connected now, he hopes to re-enter his home community with less dislocation. Another international informant explained her need to communicate in real-time to maintain her distant community:

> *Writing simultaneously on-line gives me an added sense of interactivity and a feeling of proximity. I go as far as sacrificing my early morning sleep to get up and get on-line with friends in Greece who are seven hours ahead. My mornings are dedicated to writing on-line and sending e-mail while drinking my morning coffee. Early mornings have become the favorite part of my day and early classes seem to disrupt my daily interactive ritual. (Stacey).*

Social Interaction within the Family

Families played an important role in interactive media use. Parents were often the facilitators who bought the family's first computer, subscribed children to their first Internet service, and encouraged students to write home via e-mail when they went away to college. Typically, fathers were presented as enablers while mothers were viewed as more reticent and passive in their use of communication technology. For example one informant wrote:

> *My father enjoys the on-line services, e-mail, and surfing the Web. My mother complains that my father is glued to the computer constantly, to the point of not participating in other activities. Conversely, while not an active participant, my mother seems intrigued by the concept of e-mail and how my father can instantly communicate with a friend in Sweden or relatives on the West Coast; as well as the amount of information available (Doug).*

Siblings also played a key role for many informants. Many reported that an older brother or sister had introduced them to the Internet. Others reported that a younger sibling was a computer genius. Many informants reported a kind of generation gap with themselves as the "boundary spanners." Older relatives were reticent to adopt interactive communication technologies. Parents weren't much better off then grandparents and older siblings were only slightly more advanced than parents. But many of the 20-something informants reported that they and their cohorts were tech-savvy by necessity. They had to adapt to communication technology if they wanted to survive as college students. But they saw themselves are relative dinosaurs by comparison to their younger siblings and cousins who are learning technology at a much younger age. One young man wrote: *"My little sister who is currently 10 years old uses the computer very often (sometimes too often). Every time I visit the family, she asks (more like begs) me to let her surf the Web and chat online" (Kyle).*

The theme of "staying in touch" with relatives appeared frequently. Some informants reported that a primary reason for using e-mail was to be able to communicate with distant family members in a low-cost and easy way. One young woman reported on a fairly formalized approach she had taken to maintaining communication with distant family:

> *The Internet also gives me the capability to keep in contact with my entire family across twelve states at an inexpensive cost. I send a "T-Newsletter" about once a month to all my friends and family who do not live in Knoxville (that's all of them). It is a convenient way to let everyone know how well I am "growing" and it is the least time consuming method of communication (Tara).*

For many informants, e-mail and the Web provided a low-cost substitute for the phone or low-effort substitute for writing letters, for others the shift to electronic communication was more substantive. Several indicated relationships with parents had deepened because they felt somehow more "free" to communicate via e-mail. One young man wrote:

> *Whereas before I rarely discussed matters of emotional significance with my dad, my e-mails now were soliciting dating advice. It was - and is - a peculiar transformation of the relationship. We still rarely talk in person about anything of real personal significance. My relationship with my dad is definitely closer on the electronic level (Brian).*

Social Interaction with Others

Social interactions extended far beyond the family. Even though parents might have provided enabling technology, it was often peers who most strongly influenced informants' adoption of communication technologies. Sometimes this peer influence slowed adoption:

> *Initially my friends had a negative effect on my attitude towards interactive media. No one around me really knew what to do with it. At first it seemed so complicated and the future of it so uncertain that there seemed to be no reason why the average person would need to know how to use it. This attitude rubbed off on me. Perception soon changed, and everyone around me was quickly trying to figure out how to use interactive media (Lisa).*

More often, peers inspired informants to get online so that they could "play" together. One young woman reported that she and her friends would send e-mail by night and the spend the day joking with each other about how they had been *"sneaking on the computer in our dark houses to see who has replied to our messages" (Kathy).* A young man described how he made friends with boys that were outside of his social set primarily so that he could learn more about interactive media:

> *In 6th grade, some new friends of mine started inviting me over to their houses. They had been friends before and were both a little on the nerdy side, but they were nice and they kept talking about they're computers at home, so I ventured with them. They both showed me my first experiences on the Internet. They would connect through Prodigy and chat and play games with other people. I was very surprised that you could see what some one else was typing on your screen (Brad).*

Social interaction sometimes occurred as friends used the technology to plan their social events. One young women reported that she and her friends worked together online to plan a trip to celebrate their graduation form high school:

> *We began surfing the Web to get as much information as possible on any tropical destination. We found enough on Cancun, Mexico to convince our parents that it was safe enough and reasonable for eleven girls to spend an entire week after graduation. I remember how powerful I felt going to my parents and presenting them information on Cancun that I had received from the Web (Debbie).*

Social interactions sometimes extended beyond the friends that informants had made through school or other physical settings. In fact, the opportunity to "meet" people online was a major theme in many of the informants' essays. One young man wrote: *"I spent hours conversing with complete strangers across the nation about anything and everything. I even made virtual friendships with complete strangers across the world" (Kyle).* Several informants reported that their willingness to meet strangers online had diminished as they matured. For example, one young woman who had met her husband online reported that after she married she became more reticent about social encounters with strangers:

> *When I was single, I was fairly adventurous in contacting people and instigating email relationships with those I found to be like-minded. I probably spent two or three hours a day answering email. After I was married, and living in the same city as my husband, things changed, and I spent less time online and stopped meeting new people online (Karen).*

While most reported that online social interactions had many positive benefits, several informants expressed concerns about the effects that online socializing had on their offline social lives. One young man wrote: *"I began to lose the really intimate relationships I had with the friends I saw on a regular basis at school. I could open up with new friends online on a level that I couldn't with friends I saw everyday" (Ben).* Another young woman wrote at length about her concerns that online social interaction would destroy other important forms of human interaction:

> *We should not forget that interactive media are based on a computer, which is not a human being. We can write e-mails to friends, buy online without entering a store, chat with unknown people, maybe fall in love with unknown people all without moving from our chair. We can even forget about the outer world, the real one. All this, though, is very different from a real chat with a friend, a day of shopping, and a first date. This is, as far as I am concerned, the biggest risk about the spread of interactive media: losing contact with the world around us. We must not forget that a computer will never be able to replace personal relationships. After all, we all need to interact with real people and places. The emotion that derives from facing such masterpieces as La Gioconda could never be replaced by the most detailed virtual tour of the Louvre. In the same way, a real hug or smile will always transmit emotions that are impossible to feel through an apathetic computer screen (Sophia).*

Selective Coding

After review of the ways that young people are defining themselves and their communities and interacting with others through communication technologies, two selective coding categories were identified: duality and dependence.

Duality

Interwoven through most of the essays were multiple strands of dualities. Those that appeared most frequently were the tensions between the positive and negative, the utopian and distopian, active and passive participation, work and play, and the old and new.

Many informants expressed excitement about coming of age at the same time that the Internet, Web, and related technologies spread throughout society. They saw many positive benefits for the future with interactive media as a central part of life. But even amidst this positive view, they sometimes saw negatives such as fear of technology and social isolation. Sometimes this positive/negative duality was expressed in terms of how different generations responded to the technology. For example, one young woman reported: *"There are two distinct views about interactive media in my family. My sister and I use the Internet in almost every facet of our life – reading about current events, email, online shopping, horoscopes, etc." (Debbie).* By contrast, her parents were hesitant and concerned: *"Neither of them feels confident or comfortable enough to browse the Internet and use it to its full potential. They seem almost afraid of what the Internet holds in terms of information and its safety" (Debbie).*

In many essays, the duality focused on social effects of technology. Some envisioned a future utopia in which technology would enable an informed society to function more efficiently. But they also recognized potential problems with this kind of participatory democracy. One informant wrote: *"The Internet represents the democratic process at its messiest, with all its rough edges - the free exchange of ideas. It brings citizens closer to government in a way that empowers everyone more equally by providing a channel for personal expression" (Brian).* Other utopian images included the ability to communicate with anyone anywhere about anything. This social use of the Internet was seen as a good thing, but many also noted potential distopian images embedded in the technology:

> *Man is a social being that is supposed to interact with other human beings according to a certain set of values. Truth and honesty are some of them. By hiding our identities behind a monitor we just lose so much of the essence of life. Some people are so hooked up to computers that they neglect almost all other activities in life (Thea).*

Many informants saw interactive media as inherently active. They must do things such as searching, writing, and chatting in order to use the medium. *"People log onto the Internet precisely because it is interactive. They want to participate in something" (Terri).* The Web also gives new potential to "talk back." One informant wrote: *"I can give my feedback to media companies and many online media operated businesses by participating in audience forums" (Park).* Another reported that she could actually help to contribute to the news by participating in online polls. But others reported that they were constantly seeking for ways to streamline their online activity and get the same benefits without having to be so active all the time. One informant reported using portal sites to set up a customized format that would deliver only the information she wanted without making her have to seek it out everyday: *"I like that I can go to one of these sites and personalize a page for myself that will then give only the news, stock quotes, horoscope, weather, and information that is relevant to me" (Liz).*

For many of the informants, the Internet and related technologies were about work. They did research online, coordinated their class teamwork by e-mail, registered for classes online, and used technology to organize their lives. But it also affected their play: *"It's now so easy to find out about anything you want, like what is going on in the world, the country, or even what band is playing at my favorite bar on Friday night" (Karen).* Many reported using the Web to search out entertainment opportunities and buy tickets online for activities in the "real world." For others, "play" actually occurred online. They played multi-user games, fantasy sports, and engaged with friends in chat rooms. Many informants saw online work as necessary and appropriate, but had grave concerns about online play:

> *Using the Web for a purpose is one thing and using it simply for entertainment is another. Many people find it easier to deal with a machine rather than interacting with each other. When dealing with a machine you have total control over what information you will get when and how. Most importantly, the machine is not demanding or expecting anything from you. Interacting with people can put a certain amount of pressure on you (Pam).*

Informants talked about old and new media, younger and older generations, and pre- and post-Internet ways of doing things. For the most part, they venerated the new. But many also recognize value in the old and expressed some nostalgia for the world before the Internet. For example, one young man expressed concern that his younger brother would probably never use a newspaper or buy a magazine because all the information he needed was on the Internet. Many reported that new media had so changed their lives that it was hard to remember the "old" life: *"I had to ask myself-before the Internet, where did I ever get all my information and communicate with so many people on a daily basis? The answer was simple-I didn't" (Carol).* Old communication tools were associated with old ways of doing things (e.g. picking up the phone to call family and friends) and new media with convenience: *"Now with the invention of e-mail I can send a letter at a time that is convenient to me" (Chris).* Several informants also expressed surprise at occasional new media uses by older people in their lives: *"I did not truly realize the power of the Web until the day my grandmother sent me an e-mail. The woman is still afraid of the VCR, yet she felt inclined to experiment with the most earth shaking discover of the twentieth century" (Fred).*

Dependence

As technology came to define their generation, many informants reported that they depended on the Internet and related technologies to help them define themselves and their communities. They needed it to be able to maintain social interactions. One young woman wrote that the Internet *"filled a void that we did not know we had" (Kathy).* Another wrote about the way that her dependence on the Internet affected almost every aspect of her life:

> *I use it all the time, and I believe that my life would be very different without it. I would not be able to look up the things that I wanted to without calling to get a brochure, going to the library,*

> *or ordering a book or catalog. My phone bills would be extremely high, and I would not talk to my mom as much. I really do not see what people did before the Internet was invented (Natalie).*

Informants reported that they were "expected" to be connected and if they weren't they would not be able to participate in their community. One young woman wrote: *"All of my classmates communicate with me via e-mail. It is the only real way to contact someone in college" (Leslie).* A young man wrote: *"Every year I feel that more people are requiring me to use the computer to interact or search for information" (Jack).* A young woman noted that: *"Classmates and friends are not just using the Internet; it has become a vital influence in their lives. It has changed the way that they are able to research, and participate in classes. Social interaction has been effected as well, as e-mail becomes a major form of communication" (Esther).*

For some, dependency was described as addiction: *"I have become hooked on the Web, trite as it sounds" (Terri).* Many expressed the need to use e-mail for communication: *"I couldn't imagine not having e-mail, it keeps me in direct contact with teachers, long distance friends, and relatives" (Anna).* One informant reported dependency had turned into need that was driven by others in his community:

> *I think I actually need to use the Internet on a daily basis in order to maintain all of my relationships with people that are currently established. If I don't "instant message" or email my girlfriend on a daily basis, she will get worried about me because that is our main method of communication (Matt).*

Other informants looked forward to their futures and expected this dependency to increase. Not only would they need to stay in touch with their college friends after graduation, but also they would continue their use of the Web for staying current, shopping, information searching, etc. Communication technologies would affect both their personal and professional lives: *"I realize that I need to be able to use the Internet well, for my future career" (Jillian).*

DISCUSSION

This study examined the role of interactive media technologies in shaping the identity and social interactions of young adults. The results of the research are stimulating, and, as with many studies, raise more questions then they answer. A major finding to emerge from the research is the duality of feelings that interactive media technologies evoke for young adults. These yin and yang attitudes toward the media technologies in their lives are manifest within a context of dependency. This dependency on interactive media technologies has paralleled their coming of age and increased as they have grown. Below, we discuss the implications of the research and point out areas for future study.

The results of this study relevant to the role of interactive technologies in the family are intriguing. The role of interactive media technologies in the family lives of these participants is best described as generational. Participants described clear difference in the way their generation used technologies compared to the generations of their parents and grandparents. In almost every instance, older generations were characterized as not understanding the potential of interactive technologies. While the current research sheds light on how young adults build "community" around interactive technologies, more research is needed on how technologies define a generation, and how technological use by generations unifies or isolates the generations within a family from each other.

For young adults, the family plays a key role in their introduction to interactive technologies with parents and siblings, in particular, being especially important. This introduction largely takes place prior to a young adult's college experience, so that by the time they began college, most of the participants in this study had some degree of familiarity with interactive technologies. By way of introduction, participants' views about the roles of parents varied, with fathers being characterized as primary facilitators and mothers as laggards whose use of media technologies was somehow inferior. What is left unanswered is how these views affect the parent/child relationship and other dynamics in the family. Are the roles of parents in the modern family changing because of media technologies such as the Internet? If so, what role does technology play in defining how children view their parents? Do media technologies function to strengthen sibling bonds? What role, if any, do interactive media technologies play in formulating gender stereotypes in the family? Are stereotypes being perpetuated or diluted with the help of newer media types? Among parents who use interactive technologies, what role do the technologies play in learning how to be a parent? Has the Internet taken on the role of household babysitter, a role once held by television? Are attempts being made by parents to structure the use of these new technologies?

Future research that seeks the answer to these questions is needed and will shed more light on the role ot media technologies in the changing dynamic of the modern day family.

Within the family, siblings act as cohorts with brothers and sisters teaching each other or learning technology together. However, the results of this study suggest that even within groups of siblings, media use differs. Participants described older siblings as less adept at using interactive technologies while younger siblings were often described as far ahead of the participants in their use of the technologies. This finding suggests that while the young participants in this study grew up with the Internet, within their age cohort vast differences and skill levels are evident. Previous research somewhat supports this assertion. A study of the relationship between Internet use and the individual-level of social capital suggests that informational uses of the Internet are positively related to individual differences (Shah, Kwak & Holbert, 2001). While their study did not look specifically at Internet use in the context of family, it did uncover differences in age groups and the media they turned to for their primary information. For future research, the current study suggests that studies on media use by age may be best accomplished by breaking down research subjects into the smallest possible age categories. It is obvious that even a few years difference in the ages of young adults may yield very different patterns of media use.

The results of this study certainly support the assertion that young adults form social relationships online. Wilkins (1991) hypothesized that Internet users incorporate linguistic features normally associated with oral conversation in their computer mediated communication. This oral style may explain why participants become friends so easily. It is possible that participants in this study – young adults who were "raised" with the Internet – have developed a style of interpersonal communication that lends itself well to an 18 inch computer screen. Future research should investigate if and how "Internet speak" differs from more traditional patterns of communication.

The findings of this study also suggest that many bonds formed online migrate off-line to more traditional settings. Parks and Floyd (1996) concluded that online relationships often develop and are then broadened to include family and friends. Further, these relationships grow beyond the computer into other communication channels technologies such as the telephone or the postal service. Morrison and Krugman

(2001) documented that computers increase social action external to the family. While the current study suggests that young adults do form relationships online, the method used – one time historical accounts of experiences with media technologies – does not allow for tracking the genesis of these relationships. Further research is needed to examine how important these relationships become and how they influence the social dynamics of young adults. What is clear from this study, however, is that the computer is taking on an increased social role for young adults, one that influences their social interactions with peers.

The role of interactive technologies and how they are used has implications for the way young adults participate in a democratic society. For example, several participants in this study commented on how the nature of interactive technologies facilitated being able to participate in various things such as special interest groups or political organizations. Because young adults are often characterized as disinterested in social causes or political topics, this may be viewed in a positive light. However, the involvement described by the participants varied markedly from what sociologists have traditionally described as participation in social groups. Previous research, while not looking specifically at young adults, has documented that interactive computer networks facilitate political participation and social movements (O'Sullivan 1995). This is true particularly among sympathizers of organizations who act professionally on behalf of causes with great public appeal and low radical potential (Diani, 2000). Future research should investigate if (and how) the nature of computer-mediated participation in social groups differs from traditional participation. In the desire of young adults to participate in something, are virtual means of participating replacing more traditional means? If we are able to protest on line, is our society adversely affected because we are not participating in the flesh? Politically, how are virtual constituencies viewed and how are their efforts viewed by those who determine government policy? The answers to these questions may offer insight into the nature and role of computer mediated participation in society.

The results of this study have implications for the way that U.S. educators approach the Internet in their classrooms. First, American students should be taught that their use of the Internet is not the norm. A recurring theme among the participants in that this study was that they are "typical" of all Internet users and that their access to the technology is representative of the access available to everyone.

In reality, college students are a privileged group whose use of technology is the exception rather than the rule among the people of the world. While the effects of technology on society can be quite positive – witness the role of medical websites for providing information that facilitates early diagnoses of many illnesses – young adults must not forget that access to information technology is a barrier to be overcome. One possible solution to this misconception is to interweave the technological perspective through all courses dealing with international issues. For young adults to realize that their experiences are atypical of others in the world, they must first be aware of the technological environments of other cultures.

Second, dependency on the Internet is so heightened that educators must take initiatives not to let alternative ways of doing things fall by the wayside. For example, many of the participants in this study noted how the Internet had replaced the need for traditional "library" research. In a sense, for this group of young adults, a building full of books had been replaced by a computer and a modem, and one got the feeling that these students weren't really aware of the difference between the two. Students need to be counseled that the Internet does not replace the need for traditional forms of research and instead should be viewed as supplemental to the learning process. Many students in this study related how one of the roles of the Internet in their lives is to make things easier and more convenient for them. As educators, we should show students how this is true but we should also instruct students that media technology is a tool, a means to an end, but not an end in itself.

The results of this study suggest that media technologies often threaten to overwhelm young adults. A prevalent theme uncovered during axial coding was that young adults often feel in danger of losing themselves amidst the wealth of information available on the web. In the face of large amounts of information, participants expressed a desire to step back and remind themselves of what their opinions really are. In this regard the World Wide Web poses an interesting dilemma. While a vast amount of information helps shape the identity of these young adults, it also threatens to overwhelm them. In some instances, participants expressed frustration with their ability to discern "good" information from "bad." In this realm, educators also play a role. The problem of information overload suggests that media literacy programs are needed to help young adults critically evaluate and sort through information available on the

Web. While young people should be encouraged to explore new views and expand their worlds, they should also be educated in how information is assembled and disseminated and how persuasive arguments are framed around information. This knowledge will help them critically evaluate the information delivered via new technologies.

One positive finding from this research is that young people are aware of not only the benefits but also the many dangers associated with interactive technologies. Participants were quick to point out the negative social effects of Internet use, such as the danger of replacing interpersonal relationships with virtual ones, and ramifications of media dependency on their lives. However, just because they are aware of technology's potential negative effects doesn't mean that their use is tempered. It is possible that technology so defines this generation of young adults that not using it means running the risk of being left out. Hence the pressure to align with a peer group overcomes the more negative aspects of using a technology. And in this way, dependency on the technology is heightened in the need to belong. From reading these autobiographical accounts, one gets the sense that media dependency is becoming the modern day addiction, as powerful as cigarettes, alcohol or heroin, and as prone to peer group pressures. More research is needed into how media technologies bind together certain peer groups, the dangers of going along with the group as it relates to media technology use, and the repercussions of not bowing to peer group pressure to use a media technology in a certain way.

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Table 1. Summary of Informants

Pseudonym	Gender	Graduate/Undergraduate	Nationality	Written
Able	M	Undergraduate	USA	2000
Amy	F	Graduate	USA	1999
Andrea	F	Undergraduate	USA	2000
Andrew	M	Undergraduate	USA	2000
Anna	F	Undergraduate	USA	2000
April	F	Undergraduate	USA	2000
Ben	M	Undergraduate	USA	2000
Bill	M	Undergraduate	USA	2000
Bonnie	F	Undergraduate	USA	2000
Brad	M	Undergraduate	USA	2000
Brent	M	Undergraduate	USA	2000
Brian	M	Graduate	USA	1998
Byron	M	Undergraduate	USA	2000
Carol	F	Undergraduate	USA	2000
Chris	M	Undergraduate	USA	2000
Cindy	F	Undergraduate	USA	2000
Connie	F	Graduate	China	1998
David	M	Undergraduate	USA	2000
Debbie	F	Undergraduate	USA	2000
Derek	M	Undergraduate	USA	2000
Donald	M	Undergraduate	USA	2000
Doug	M	Graduate	USA	1998
Esther	F	Undergraduate	USA	2000
Fran	F	Graduate	USA	1998
Fred	M	Undergraduate	USA	2000
Gena	F	Undergraduate	USA	2000
Harry	M	Undergraduate	USA	2000
Jack	M	Undergraduate	USA	2000
James	M	Graduate	Korea	1999
Jane	F	Undergraduate	USA	2000
Jason	M	Undergraduate	USA	2000
Jeremy	M	Undergraduate	USA	2000
Jillian	F	Undergraduate	Sweden	2000
Joanne	F	Undergraduate	USA	2000
Joe	M	Undergraduate	USA	2000
John	M	Undergraduate	USA	2000
Julia	F	Undergraduate	USA	2000
Karen	F	Graduate	USA	2000
Kathy	F	Undergraduate	USA	2000
Kelly	F	Undergraduate	USA	2000
Kevin	M	Graduate	USA	2000
Kim	F	Undergraduate	USA	2000
Kyle	M	Undergraduate	Viet Nam/USA	2000
Lee	M	Graduate	Korea	2000
Leslie	F	Undergraduate	USA	2000
Lisa	F	Graduate	USA	1998

Table 1, cont.. Summary of Informants

Pseudonym	Gender	Graduate/Undergraduate	Nationality	Written
Lori	F	Undergraduate	USA	2000
Margie	F	Undergraduate	USA	2000
Marie	F	Undergraduate	USA	2000
Mary	F	Undergraduate	USA	2000
Matt	M	Undergraduate	USA	2000
Michelle	F	Undergraduate	USA	2000
Monty	M	Undergraduate	USA	2000
Natalie	F	Undergraduate	USA	2000
Pam	F	Graduate	USA	1998
Park	M	Graduate	Korea	2000
Renee	F	Undergraduate	USA	2000
Rhonda	F	Undergraduate	USA	2000
Robert	M	Undergraduate	USA	2000
Sam	M	Undergraduate	USA	2000
Samantha	F	Undergraduate	USA	2000
Tara	F	Undergraduate	USA	2000
Sharon	F	Undergraduate	USA	2000
Sheila	F	Undergraduate	USA	2000
Shellie	F	Undergraduate	USA	2000
Sophia	F	Graduate	Italy	1998
Stacey	F	Graduate	Greece	1998
Sue	F	Undergraduate	Sweden/Italy	2000
Terri	F	Graduate	USA	1998
Thea	F	Graduate	Greece	1998
Trent	M	Undergraduate	USA	2000
Wes	M	Undergraduate	USA	2000

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Web Publishing Confronts International Jurisdiction in Defamation Cases

Implications of *Dow Jones v. Gutnick*

Presented to the Communication Technology and Policy Division

Association for Education in Journalism and Mass Communication

Kansas City Convention

July 30, 2003

By Constance K. Davis
Visiting Assistant Professor
Purdue University
Beering Hall of Liberal Arts and Education, Room 2114
Department of Communication
100 N. University Street
West Lafayette, IN 47907-2067
765-494-9107
ckdavis@purdue.edu

Abstract: The Dow Jones company is defending itself in defamation actions in Australia and Great Britain, where libel laws favor plaintiffs, because of articles that were available on Web sites in those countries. This paper examines the implications of United States publishers who fight libel cases in countries where their Web sites can be viewed and the recourse those publishers have should they lose, then compares it to similar jurisdictional questions in the United States.

I. Introduction and statement of the problem

On December 10, 2002, the High Court of Australia decided that Dow Jones & Company, Inc., a United States company, could be sued for defamation in Australia under Australian defamation law. Although the article in question had been posted on the Dow Jones Web servers in New Jersey, the High Court did not consider the article to have been "published" until it was downloaded in Australia. That decision sent new chills through the Internet community, which was concerned that online publishers could be sued in any country around the world where their Web sites are available.

This paper examines the *Dow Jones v. Gutnick* case along with other recent defamation cases that have examined jurisdictional issues — both national and international — related to the availability of material on the Internet. In addition, this paper briefly explores the difference in libel law between the United States, Australia and Great Britain and explains why those differences pose a concern for Web publishers. Finally, this paper also discusses international jurisdictional questions that have arisen in free speech and intellectual property cases in recent years and raises questions about whether some countries could become havens for libel suits, but also whether the United States courts would enforce those judgments. In at least three cases in just over a decade, United States courts have refused to enforce libel judgments from foreign courts. The paper also examines the possibility of an international treaty that could make clear to all Web publishers the libel dangers they would face in other countries.

II. The cases

A. *Dow Jones v. Gutnick*[1]

An article titled "Unholy Gains" was posted on *Barron's Online* on October 28, 2000.[2] The article included references to Joseph Gutnick that he claimed defamed him.[3] Gutnick lives in Victoria, Australia, and his business is headquartered there, although he also conducts business in the United States.[4] When Gutnick brought his action against Dow Jones, he filed it in the Supreme Court of Victoria.[5] Dow Jones appealed the decision that the case should be heard in Australia, and the country's supreme court agreed to hear the jurisdiction question.[6] It held that Gutnick could bring his suit in Australia under Australian libel laws.[7]

As a practical matter, Justice Michael Kirby wrote in a concurring opinion, there was no question that Victoria's defamation law was going to be more favorable to the plaintiff than would the defamation laws in the United States, which are very much influenced by the First Amendment and are more favorable to media defendants.[8] Justice Ian Callinan, in a separate concurrence, wrote that United States defamation law "leans heavily, some might say far too heavily, in favour of defendants."[9] He criticized the marketplace of ideas theory often used in the United States by quoting a recent article by Robert H. Bork, who had claimed, "The market for ideas has few of the self-correcting features of the market for goods and services."[10]

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[1] (2002) HCA 56 (Aus.)

[2] *Id.* ¶ 2.

[3] *Id.* The article paints an association of Gutnick with Nachum Goldberg, who has apparently been convicted of tax evasion, and with a person awaiting trial in New York for stock manipulation. ¶ 171. Another portion of the article apparently represents Gutnick as one of Goldberg's money-laundering customers. ¶ 172.

[4] *Id.* ¶ 2.

[5] *Id.* ¶ 173.

[6] *Id.* ¶ 8.

[7] *Id.*

[8] *Id.* ¶ 74.

[9] *Id.* ¶ 188.

Barron's sold 305,563 hard copies of the magazine containing the story in question, although only a few were sold in Australia.[11] It also had about 550,000 paid subscribers to its Web version of the magazine, of which about 1,700 had Australian addresses for their credit cards.[12] Subscribers paid $59 for a Web-only subscription or $29 if that was combined with a print subscription.[13] During oral arguments, attorneys for Dow Jones pointed out that when subscribers purchase an online subscription, a disclaimer reads: "This Agreement, your rights and obligations, and all actions contemplated by this agreement shall be governed by the laws of the United States of America and New York State, as if the Agreement was a contract wholly entered into and wholly performed within New York State."[14]

The question the High Court faced as it contemplated the jurisdiction issue was where the "publishing" of the article actually took place — at the Dow Jones Web servers in New Jersey when the article was uploaded to the Web servers, or when the article was downloaded by Gutnick in Victoria, Australia.[15] The High Court also considered where the plaintiff's reputation resided, which Gutnick claimed was also in Victoria, Australia.[16] A third question the High Court considered was whether the Internet was a unique enough medium to force Australia to reformulate its defamation laws.

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[10] *Id.* The Bork article, "Adversary Jurisprudence," was in *The New Criterion*, May 2002, page 7.
[11] *Id.* ¶ 169.
[12] *Id.*
[13] *Id.* ¶ 1.
[14] High Court of Australia Transcripts, *Dow Jones & Company, Inc. v. Gutnick* M3/2002 (May 28, 2002) available at http://www.austlii.edu.au/au/other/hca/transcripts/2002/M3/2.html.
[15] (2002) HCA 56 ¶ 11 (Aus.).
[16] *Id.* ¶ 46, 48.

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Dow Jones had argued that the "publishing" of the story in question took place when the story was placed on its servers in New Jersey.[17] Its editorial offices are in New York City, but Web material is either transferred directly to six servers in South Brunswick, New Jersey, or through an intermediate site at Harborside, New Jersey.[18]

Although Dow Jones and the intervenors[19] in this case had tried to claim that the uniqueness of the Internet ubiquity should allow "publishing" to take place where material is placed onto the Internet, the High Court was not impressed by that approach. During oral arguments, the Dow Jones attorney argued that "the only way the web owner can avoid liability is not to put the material on the web at all, to confine publication of the material to the jurisdiction in which it is justifiable."[20] The High Court pointed out that as previous communication technologies have become more widely disseminated, the law has had to repeatedly address these issues.[21] With the advent of satellite transmissions, the Web "is no more or less ubiquitous than some television services."[22]

Justice Kirby acknowledged that technology did not yet allow a publisher of online content to be able to control access to specific geographic regions.[23] Neither the Internet Provider (IP) address[24] nor the information gained from a credit card

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[17] Id. ¶ 18.
[18] *Id.* ¶ 17.
[19] Intervenors in the case are a mix of media organizations from the United States, Europe and Australia along with online businesses. They include Amazon.com, Inc., Associated Press, Association of Alternative Newsweeklies, Bloomberg LP, Cable News Network LP, LLLP, Guardian Newspapers Ltd, Knight Ridder, Inc., Media/Professional Insurance, The New York Times Company, News Limited, Online News Association, Reuters Group PLC, Time Inc., Tribune Company, The Washington Post Company, Yahoo! Inc., Internet Industry Association, and John Fairfax Holdings Ltd.
[20] High Court of Australia Transcripts, *Dow Jones & Company, Inc. v. Gutnick* M3/2002 (May 28, 2002).
[21] (2002) HCA 56 ¶ 38 (Aus.).
[22] *Id.* ¶ 39.
[23] *Id.* ¶ 84.
[24] *Id.*

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registration would be reliable in designating a country.[25] In addition, technologies that allow users to become anonymous make it difficult to ascertain a user's location.[26]

Another reason to keep the case in Australia, Justice Kirby argued, is "Because of the vastly disproportionate location of webservers in the United States when compared to virtually every other country" that United States law would be forced upon "courts unable to afford vindication in the place where it matters most."[27] Kirby did acknowledge, though, that if a "plaintiff has a substantial reputation in more than one legal jurisdiction and seeks to recover for the damage in all such jurisdictions in a single proceeding" that such litigation "may indeed have a chilling effect on free speech merely because one of those jurisdictions has more restrictive defamation laws than the others."[28]

During oral arguments, counsel for Dow Jones had attempted to give yet another reason why the proper jurisdiction should be in the United States. He pointed out that prior to publishing the article, Dow Jones had notified Gutnick of the nature of the impending story and had offered to fix any mistakes he found or even publish any reply Gutnick might choose to offer. Geoffrey Robertson explained to the High Court that journalists in the United States routinely follow that procedure to reduce the risk of actual malice.[29]

In spite of attempts by attorneys both for Dow Jones and the intervenors in this case to portray the Internet as a unique medium that required a reformulation of Australian defamation laws, the Australian High Court did not agree. Justice Kirby discussed the idea of reformulating the common law, but wrote that the Australian law limited the Court's ability to develop law, a job best left to the legislature.[30] Kirby agreed that the Internet used new technologies, but felt the time was not yet ripe for changing its common law, especially since the rapid development of Internet technology might render its changes moot.[31] The Court decided that Gutnick could proceed with his defamation case against Dow Jones in a Victoria, Australia, court.

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[25] *Id.* ¶ 85.
[26] *Id.* ¶ 86.
[27] *Id.* ¶ 133.
[28] *Id.* ¶ 152.
[29] High Court of Australia Transcripts, *Dow Jones & Company, Inc. v. Gutnick* M3/2002 (May 28, 2002).

About four months after the Australian High Court's decision, the reporter who wrote the story filed a complaint with the United Nations High Commissioner for Human Rights, claiming that his free speech rights under Article 19 of the International Covenant on Civil and Political Rights had been violated.[32] William Alpert said he had filed the complaint "because I fear restrictions on the ability of financial journalists . . . to report truthfully to United States investors on the activities of foreigners who are actively engaged in the U.S. markets."[33] He voiced his concern that "[p]owerful and sophisticated plaintiffs could search out overseas jurisdictions willing to help stifle news coverage that was only directed at local readers in those journalists' home markets."[34]

B. *Dow Jones & Co., Inc. v. Harrods Ltd.*[35]

The Australian case with Gutnick is not the only international libel case that Dow Jones could be fighting. A 2002 April Fool's joke gone bad[36] could also force Dow

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[30] (2002) HCA 56 ¶ 75-92 (Aus.).
[31] *Id.* at ¶ 125.
[32] News Release: Alpert v. Australia: Barron's writer challenges the decision of the High Court of Australia over Gutnick case, April 15, 2003, available at http://www.dowjones.com/news_aboutDJ/AlpertvsAus.doc.
[33] *Id.*
[34] *Id.*
[35] 02 Civ. 3979 U.S. Dist. LEXIS 19516 (SDNY 2002).

Jones to defend itself against a libel claim in a British court. The article at issue appeared in both the print and Web versions of the *Wall Street Journal*.

When Dow Jones learned that Harrods intended to file a libel suit in Britain,[37] Dow Jones filed its own suit in a federal court in New York,[38] asking the court to apply the Declaratory Judgment Act[39] to stop Harrods from bringing suit in Britain.[40] Harrods subsequently proceeded with litigation in the High Court of Justice in London.[41]

The United States federal district court listed what Dow Jones saw as the differences in libel law between Great Britain and the United States:

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[36] *Id.* at 3-6. As the court explains it, " The action began with an April Fool's joke. Harrods, which among various other commercial enterprises, operates the well-known department store of that name in London, England, issued a press release on March 31, 2002, headlined 'Al Fayed Reveals Plan to "Float" Harrods.' The release stated that Al Fayed, Harrods' Chairman and effective owner, would issue on the following day an important announcement 'about the future plans for the world-famous store,' including 'a first-come-first-served share option offer.' Journalists seeking further comment were directed to contact 'Loof Lirpa' at Harrods. In fact, 'Loof Lirpa' is 'April Fool' spelled backward. On April 1, 2002, the planned announcement posted on the designated web site described Al Fayed's decision to 'float' Harrods by building a ship version of the store to be moored in London on the embankment of the Thames River. The announcement included a limited offer of 'shares in this exciting new venture.'" . . .

"Dow Jones read the March 31 press release as purporting to announce that Harrods planned to 'float shares,' i.e., a public offering of stock. It did not wait to see Harrods' actual disclosure on the announcement date. Instead, on April 1, in the print editions of the Journal in the United States, and on the Journal's website 'WSJ.com,' Dow Jones published an article reporting that Harrods would disclose plans that day to publicly list the company's shares.

"Upon learning the Harrods' announcement had been an April Fool's joke, the Journal published a correction so advising its readers in an item that appeared in its April 2, 2002, print editions in the United States as well as on WSJ.com. Three days later, Dow Jones countered with a story it asserts was intended as the Journal's own brand of wry, light-hearted humor, the article that ultimately catapulted into the conflict now before this Court. The Journal's 'Deals & Deal Makers: Bids & Offers' column on April 5, 2002, published an item entitled ' The Enron of Britain?' The first sentence in the April 5 Article, which appeared in the Journal's United States print edition and on WSJ.com, states that 'If Harrods, the British luxury retailer, ever goes public, investors would be wise to question its every disclosure.'"

[37] *Id.* at 9.

[38] *Id.*

[39] *Id.* at 19. The court explained that the primary purpose of the Declaratory Judgment Act, according to the Second Circuit in *Beacon Construction Co., Inc. v. Matco Electric Co., Inc.* was to "afford a speedy and inexpensive method of adjudicating legal disputes without invoking the coercive remedies of the old procedure, and to settle legal rights and remove uncertainty and insecurity from legal relationships without awaiting a violation of the rights of the relationships." 521 F.2d at 397 (2d Cir. 1975).

[40] *Id.* at 2.

[41] *Id.* at 10.

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> [U]nder British law: (1) the burden of proving truth of defamatory statements falls on the defendant; (2) defamation is a strict liability tort and plaintiff need not prove that the defendant acted with any fault, in contrast with the 'actual malice' standard that applies under American First Amendment principles; (3) protection for expression of opinion is severely limited; (4) only limited protection is available for statements about public officials or public figures; (5) aggravated damages are permitted for asserting certain defenses, for example, a defendant's seeking to justify the publication; (6) plaintiff's attorneys fees and costs must be paid by the unsuccessful defendant; (7) multiple, repetitive suits are allowed for each individual publication, for example, for different media or various places of publication.[42]

The United States federal district court denied the request to block a libel suit in Britain. The Federal Declaratory Judgment Act, Judge Victor Marrero wrote, "was designed as a means to facilitate early and effective adjudication of disputes at a time when a controversy, though actual, may still be incipient, but before it expands into a larger conflict." [43] This case, the judge wrote, was still far from being an "actual controversy"[44] since Dow Jones had come up with too many contingencies in a case where the London court has not yet acted.[45] In fact, Marrero wrote, "Dow Jones' own express confidence that any judgment rendered against it in the London Action would be summarily dismissed in any United States court works against its strenuous assertions that it faces a real, sufficiently direct and immediate threat of injury."[46]

In addition, Marrero wrote, it appeared that Dow Jones was trying to use the act "as a defensive shield, a preemptive means to immunize a litigant" from the costs of defending a lawsuit in another country.[47] Furthermore, the judge questioned whether a court in the United Kingdom would even recognize or actually enforce an order not to bring a libel suit there.[48] He wrote that Dow Jones' decision to file suit in United States federal court "amounts to strategic forum-shopping motivated by pursuit of a tactical edge over an opponent."[49]

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[42] *Id.* at 12. Harrods responded that the passage of the Defamation Act of 1996 had brought changes, but it has not changed the protection given to the plaintiff.
[43] *Id.* at 14.
[44] *Id.* at 25.
[45] *Id.* at 58.
[46] *Id.* at 29.
[47] *Id.* at 59.

The judge wrote that Dow Jones' case would be welcome in a United States federal court only if: "the London Action produce a judgment based on application of principles that would vitiate public policies of the United States. . ."[50]

C. Other cases with United States defendants

Few other international Internet defamation cases have been filed, and those that have, have not necessarily found that jurisdiction rests where the plaintiff resides. Other issues have been at play in these cases. Dr. Laurence Godfrey, deemed by *Wired News* as "one of the most ardent activists in the seemingly doomed fight to force the global Internet to submit to national libel laws,"[51] filed a succession of suits against Britain's largest Internet Service Provider, attempting to hold them responsible for the speech of all of their users, as was outlined in the Defamation Act of 1996.[52] Demon Internet, the ISP, failed to appeal a preliminary ruling that Demon was responsible for libelous comments once it had been alerted.[53] Godfrey had also sued the University of Minnesota over comments made against him by a former student, using his university account while in a Usenet newsgroup.[54] Godfrey settled with the University of Minnesota in an English court and had claimed that he had a right to bring the suit there because that is where people read it, where he claimed it was published and where his reputation was damaged.[55]

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[48] *Id.* at 122.

[49] *Id.* at 127.

[50] *Id.* at 150-151.

[51] Jill Priluck, "Free Speech, But Whose?" *Wired News*, July 6, 1998, available at http://www.wired.com/news/print/0,1294,13467,00.html.

[52] *Id.*

[53] *Id.*

[54] Nicole Vulcan, "Libel settlement may pave way for international Internet legislation," *The Minnesota Daily*, February 5, 1999, available at http://www.mndaily.com/daily/1999/02/05/news/godfr/.

In December 2001, a New York court dismissed a defamation suit filed there by a Mexican citizen.[56] The allegedly defamatory material had been published in a Mexican newspaper that publishes information about the drug trade, *Por Esto!*[57] The *Narco News Bulletin,* a Web site that targeted drug trafficking, then published some of the articles in question.[58] The plaintiff brought a defamation suit in Mexico, and after that was dismissed, filed suit in New York for the same material.[59]

The New York court decided the defendant Menendez-Rodriguez simply did not have enough contacts with New York for personal jurisdiction, although he had traveled to New York for a panel discussion on drug trafficking.[60] However, *The Narco News Bulletin* did have a post office box in New York — at least for a brief period — and the Web site was hosted by a New York company. The judge wrote that sufficient contact for personal jurisdiction might exist there, but held that first it needed to determine whether the defamation claim was sufficient,[61] and then found that it was not.[62]

The judge in the case, Paula J. Omansky, found, "The fact that the *Narco News* website can accept readers' comments, or letters to the editor, via a separate e-mail address only strengthens the need for First Amendment protections for the medium."[63] As a result, "*Narco News*, its website, and the writers who post information, are entitled to all the First Amendment protections accorded a newspaper/magazine or journalist in defamation suits."[64] In addition, the judge held, drug trafficking was clearly a matter of public concern.[65]

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[55] *Id.*
[56] *Banco Nacional de Mexico v. Menendez Rodriguez, Giordano and The Narco News*, 603429/00 (N.Y. Sup. Ct. 2001).
[57] *Id.* at 4.
[58] *Id.* at 2.
[59] *Id.* at 9-10.
[60] *Id.* at 16-17.
[61] *Id.* at 19.
[62] *Id.* at 24-25.

D. Interstate jurisdiction: *Young v. New Haven Advocate*[66] and *Revell v. Lidov*[67]

At the same time the international jurisdiction implications of libel over the Internet were being addressed by the Australian High Court, similar cases in the United States were testing the same basic question. Was an article considered to be published in the state where the newspapers put the story online or in the state where the plaintiff read the article on the Web and tried to bring a defamation suit? The courts in these cases found that the defamation case should be brought in the state where the newspapers did business.

Young v. New Haven Advocate began with articles and columns that were published in two Connecticut newspapers during March and April 2000.[68] The publications concerned Connecticut's contract with Virginia to house prisoners from Connecticut's overcrowded prisons.[69] They discussed conditions at the prisons, the difficulty of prisoners' families in making the long trip to visit and the actions of prison warden Stanley K. Young.[70] Young brought his defamation suit in Virginia, which the two newspapers sought to have dismissed.[71] The district court denied the newspapers' request to have the case dismissed, in part because their Internet activities expanded the newspapers' reach into Virginia.[72]

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[63] *Id.*
[64] *Id.*
[65] *Id.*
[66] 2002 U.S. App. LEXIS 25535, No. 01-2340 (4th Cir. 2002).
[67] 2002 U.S. App. LEXIS 27200, No. 01-10521 (5th Cir. 2002).
[68] U.S. App. LEXIS 25535, No. 01-2340 at 2-3.
[69] *Id.* at 3-4.

The Fourth Circuit, though, found the newspapers' connection to Virginia was minimal. While the *Hartford Courant* had eight print subscribers in Virginia, the *New Haven Advocate* did not have any subscribers there.[73] Neither reporter had journeyed to Virginia to do research for the stories; both did interviews over the telephone.[74] The court also found that neither newspaper had offices in Virginia, nor did they do business, seek subscribers, have assets or have any other relationships to the Commonwealth of Virginia.[75] In June 2002, the Fourth Circuit had decided another Internet jurisdiction case, which it cited in the *Young* opinion.[76] In *ALS Scan, Inc. v. Digital Service Consultants, Inc.*,[77] the Fourth Circuit reiterated the importance of "minimal contacts" with a state, despite the advances in technology, before it could impose jurisdiction over a defendant.

Young had claimed he could bring the suit in Virginia because the articles were posted on the newspapers' Websites, which were available in Virginia, and because that is where his reputation was harmed.[78] In addition, he claimed the newspapers were well aware that he would be exposed to "public hatred, contempt and ridicule in Virginia, where he lived and worked."[79]

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[70] *Id.*
[71] *Id.* at 5.
[72] *Young v. New Haven Advocate*, 184 F. Supp. 2d 498 (2001).
[73] 2002 U.S. App. LEXIS 25535 at 5.
[74] *Id.* at 6.
[75] *Id.*
[76] *Id.* at 2, 12-13.
[77] 293 F. 3d 707 (4th Cir. 2002).
[78] *Id.* at 11.

The court, using its new test, asked whether the newspapers had intended to "direct their website content -- which included certain articles discussing conditions in a Virginia prison — to a Virginia audience."[80] It found that the Websites for both newspapers included mostly local content and explained the kinds of stories it had found. In addition, it did not find that the papers' advertising was aimed at a Virginia audience.[81] As for the stories at the heart of this case, the court found that they were aimed at a Connecticut audience and focused on Connecticut's prisoner transfer policy.[82] The court held that the newspapers had insufficient Internet contacts with Virginia for the Virginia federal district court to have jurisdiction over the newspapers in this case.[83]

On December 31, 2002, the Court of Appeals for the Fifth Circuit came to a similar decision in a case where a former FBI official tried to bring a libel suit in Texas, although the story in question had been posted on the Columbia University Web site.[84] As it explored the contacts that the Columbia Web site had with Texas, it found that only 17 Texans had Internet subscriptions to the *Columbia Journalism Review* in 2000 and 18 for the first two issues of 2001.[85] The court considered the fact that the Columbia bulletin board where the offending article had been posted was interactive, allowing individuals to both send information to and receive information from the site.[86] However, the court found that the article "contains no reference to Texas, nor does it refer to the Texas activities of Revell, and it was not directed at Texas readers as distinguished from readers in other states."[87] Nor, found the court, was Texas "the focal point of the article."[88]

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[79] *Id.* at 12.
[80] *Id.* at 15-16.
[81] *Id.* at 17.
[82] *Id.* at 18.
[83] *Id.* at 19.
[84] *Revell v. Lidov.* U.S. App. LEXIS 27200, No. 01-10521.
[85] *Id.* at 10.

The court further explained that its inquiries examined the "fairness judged by the reasonableness of Texas exercising its power over residents of Massachusetts and New York."[89] However, the court wrote, "if you are going to pick a fight in Texas, it is reasonable to expect that it be settled there. It is not fairness calibrated by the likelihood of success on the merits or relative fault. Rather, we look at the geographic focus of the article, not the bite of the defamation, the blackness of the calumny, or who provoked the fight."[90]

The United States Supreme Court, during its 2002 term, declined to hear a case that questioned where a defamation suit based on Web content should be filed.[91]

E. International jurisdiction in recent non-defamation cases

Two recent cases that focus on freedom of expression and copyright bear a quick look as internet jurisdiction is discussed. In *Yahoo!, Inc. v. LICRA*,[92] French organizations that seek to eradicate anti-Semitism requested that Yahoo! remove Nazi memorabilia that was for sale on the Yahoo! auction site. A French court decided that it was relatively easy for French citizens to gain access to the Nazi material and the site therefore violated French laws that prohibit exhibiting or selling that material.[93] It ordered Yahoo! to remove French citizens' access to the offending material, post warnings and to remove specific browser directories.[94]

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[86] *Id.* at 12-13.
[87] *Id.* at 15.
[88] *Id.*
[89] *Id.* at 24-25.
[90] Id. at 25.
[91] *Healthgrades.com v. Northwest Healthcase Alliance*, No. 02-1250 (2003).
[92] 169 F. Supp. 2d 1181 (N.D. Calif. 2001).

While Yahoo did post some warnings and remove some material, it claimed it did not have the technology to block a specific geographic region from gaining access to its auction site.[95] Arguing the French court's order was infringing on its First Amendment rights in the United States, Yahoo! turned to a United States federal court to determine whether the French court's order could be enforced in the United States.[96]

The issue in that case, the court found, is whether another nation can "regulate speech by a United States resident within the United States on the basis that such speech can be accessed by Internet users in that nation."[97] The court found that "enforcement of the French order by a United States court would be inconsistent with the First Amendment."[98] Even if Yahoo! had the technology to block the material from French citizens, as ordered by the French court, "compliance would still involve an impermissible restriction on speech."[99]

In an even more recent case, another federal judge in California ruled that record companies and movie studios in the United States could bring copyright infringement action against the parent company of Kazaa in a federal court in California, even though Kazaa is not a United States company.[100]

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[93] *Id.* at 1184.
[94] *Id.* at 1184-85.
[95] *Id.* at 1185-86.
[96] *Id.* at 1186.
[97] *Id.*
[98] *Id.* at 1194.
[99] *Id.* In February 2003, a French court acquitted Yahoo! and its former chief executive officer and found they had not condoned or praised Nazism or Hitler's policies in the items it had up for auction. Reuters, "Ex-Yahoo chief acquitted over Nazi relics," February 11, 2003. Last viewed February 24, 2003, at http://news.com.com/2100-1023-984148.html.

Sharman Networks, the parent company, had sought dismissal claiming a lack of jurisdiction.[101] Kazaa began as a Netherlands corporation, then transferred ownership of most of its assets to Sharman Networks, a company organized in the island nation of Vanuatu but doing business in Australia.[102] Kazaa provides the free software that allows Internet users to share music, movies and other digital media with others who are also using the file-sharing software.[103]

As the federal district court examined the jurisdiction question, it claimed numerous contacts existed. Among other findings, about two million California residents use the software.[104] However, Sharman Networks claimed that it did not aim its software specifically at California, nor does it know where the people who download files actually live.[105] But, the court wrote, given the fact that Sharman's "software has been downloaded more than 143 million times, it would be mere cavil to deny that Sharman engages in a significant amount of contact with California residents."[106] In addition, the court found, Sharman had a public relations practitioner and law firms in California.[107] They also found that even if California might not have had jurisdiction over Sharman, Federal Rules of Civil Procedure allow "nationwide aggregation for cases arising under federal law."[108] Copyright is authorized by the Constitution, unlike libel, in which the states make their own laws. The court held, "even if Sharman could not reasonably anticipate being haled into court in this *state*, it certainly could reasonably anticipate being haled into court in this *country*."[109]

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[100] *Metro-Goldwyn-Mayer Studios Inc., et al. v. Grokster, Ltd., et al.*, CV 01-08541, *Jerry Leiber, et al. V. Consumer Empowerment BV a/k/a Fasttrack, et al.*, CV 01-09923 (C.D. Calif. 2003).
[101] *Id.* at 1.
[102] *Id.* at 3.
[103] *Id.* at 4.
[104] *Id.* at 8.
[105] *Id.* at 16.
[106] *Id.* at 18.
[107] *Id.* at 29.

III. Discussion

The question of whose law shall apply in cases that deal with Internet content is not a question that is apparently going to be resolved easily or quickly. Some of the key questions that arise in determining where a libel case should be brought are 1) where and when does publication actually occur; 2) to whom was the Web content mainly directed; 3) where did the harm to reputation actually occur; 4) where does the plaintiff reside; 5) how much involvement does the defendant have with a potential jurisdiction; and 6) where are the defendant's Web servers located?

The idea that they might be forced to design Web content for "the lowest common denominator" is abhorrent to most Web publishers in the United States, along with publishers in many other countries. In addition, as the judge in the *Dow Jones v. Harrods* decision noted, there was no reason to believe that a court in the United Kingdom would enforce a judgment made in a United States federal court. By the same token, would courts in the United States enforce judgments made in other countries? Federal district courts in the United States have already refused to enforce libel judgments handed down under British law.[110]

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[108] *Id.* at 33.

[109] *Id.* at 34.

[110] See *Abdullah v. Sheridan Square Press Inc.*, No. 93 Civ 2515 (SDNY 1994) and *Bachchan v. India Abroad Publications, Inc.*, 585 NYS 2d 661 (Sup. Ct. 1992).

In the most recent case, *Matusevitch v. Telhikoff*,[111] the court held that the statements at issue would have been protected speech under the First Amendment.[112] Judge Ricardo M. Urbina specifically found that the plaintiff would have been considered to be a limited-purpose public figure who would have been expected to prove actual malice,[113] that the statements were not allowed to be considered in their context,[114] and that the fair comment defense was not adequately considered.[115] As Judge Urbana put it, "libel standards that are contrary to U.S. libel standards would be repugnant to the public policies of . . . the United States."[116]

Clearly other countries do not have the strength of the First Amendment to protect their media, so it is not surprising that American publishers would want their libel cases to be tried in the United States. As one of the justices on the Australian High Court noted in his opinion, the media defendants might have too much protection in the United States. But if a defendant has protected its content by trying to meet actual malice or even negligence standards found in the United States, should it be forced to defend itself in a foreign jurisdiction that will not recognize those efforts?

How, then, will jurisdiction issues involving the Internet be resolved? Little is found in the literature concerning international jurisdiction.[117] In the early days of the World Wide Web, the French Minister of the Post Office, Telecommunications and Space planned to propose international laws for the Internet that were similar to maritime law.[118] International maritime law allows the law of the country where the ship is registered to govern, no matter where the ship travels.[119] However, ships eventually enter some nation's territorial waters and abide by whatever customs rules, quarantine policies and import regulations that might apply.[120]

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[111] 877 F. Supp. 1 (DC 1995).
[112] *Id.* at 2.
[113] *Id.* at 5.
[114] *Id.* at 4-5.
[115] *Id.* at 5.
[116] *Id.* at 4.
[117] Jamie Spataro, "Personal Jurisdiction over the Internet: How International is Today's Shoe," 3 PGH J. Tech. L. & Pol'y 1 (Fall 2002).

The varied approaches to libel used by courts in different countries pose a legitimate concern to publishers who think they have published their work in the United States. Libel law in both Australia and Britain does not have the kind of protection for media defendants as libel law in the United States does. In the United States the plaintiff proves the negligence or actual malice of the publication. In Australia and Britain the media defendant must prove the truth. As the Australian High Court showed, the question of where publication takes place will be of utmost importance in some jurisdictions along with the question of how to define publication. While Dow Jones believed it had published the article in question by uploading it to its servers in New Jersey, the Australian court held that it is not published until it is downloaded and someone has actually read and comprehended it. The United States courts faced with the same jurisdiction questions focused their analysis on the intended forum for the content and a defendant's minimal contacts with the jurisdiction where the suit was filed.

International law limits a state's authority to exercise jurisdiction when cases involve foreign interests.[121] The three kinds of international jurisdiction include a nation's jurisdiction to legislate, to adjudicate cases and to enforce judgments from another nation.[122] However, with the advent of the Internet and the World Wide Web, freedom of expression "regardless of frontiers" promised in the Universal Declaration of Human Rights[123] is being tested.

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[118] Alexander Gigante, "Ice Patch on the Information Superhighway: Foreign Liability for Domestically Created Content," 14 Cardozo Arts & Ent, L.J. 523 at 548 (1996).
[119] *Id.* at 549.
[120] *Id.*
[121] Restatement (Third) of the Foreign Relations Law of the U.S. § 401 cmt. a (1987).

Comity, which the United States Supreme Court has defined as "the recognition which one nation allows within its territory to the legislative, executive, or judicial acts of another nation, having due regard both to international duty and convenience, and to the rights of its own citizens or of other persons who are under the protection of its laws."[124] However, the Court held, comity "does not require, but rather forbids it where such a recognition works a direct violation of the policy of court laws, and does violence to what we deem the rights of our citizens."[125] However, United States companies with assets in foreign countries may find it more difficult to successfully fight the enforcement of a judgment against them than companies with no foreign assets.

The Hague Convention is working on a draft of "Jurisdiction, and Regulation and Enforcement of Foreign Judgments in Civil and Commercial Matters."[126] A draft has been developed and has been in negotiations for several years. The draft lists instances in which jurisdiction and enforcement will be allowed and those circumstances when states may refuse to recognize jurisdiction or enforcement. However, the Convention's work is being criticized in United States publications. One of the problems with international treaties is the fear of being locked into a rule when the law for the Internet is still being debated in this country.[127] A concern that has arisen during the negotiations is whether Internet Service Providers based in the United States would be liable for their content in jurisdictions outside the country.[128] If the United States should sign, "U.S. citizens may be held liable for posting on-line information that is protected by the First Amendment in America, but is regarded as defamatory, libelous, or a copyright infringement in another Hague member country."[129] One could argue that an international treaty should strongly consider that defamation cases must be brought only in the country where the content is uploaded to a server and where a publisher's main offices are found.

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[122] Louis Henkin et al., International Law 1046 (3d ed. 1993).
[123] United Nations, Universal Declaration of Human Rights, Article 19.
[124] *Hilton v. Guyot*, 159 U.S. 113, 164 (1895).
[125] *Id.* at 193.
[126] Preliminary Document No. 21 — Report on the Second Meeting of the Informal Working Group on the Judgments Project — January 6-9, 2003. Available at http://www.hcch.net/e/workprog/jdgm.html.

An alternative to an international treaty that might not ever be adopted by the United States is a modification of the United States' policy of personal jurisdiction — but only in Internet disputes.[130]

It is clear the technology is not yet available that allows publishers to geographically target the distribution of their Web sites in the same way they can target the distribution of printed copies of their publications.

It is also quite clear that the United States courts use a different approach to questioning jurisdiction than do the courts in Australia and Great Britain. The courts in *Young v. New Haven Advocate* and *Revell v. Lidov,* both cases that questioned in which state a libel suit should be brought, focused on the number of contacts and whether the Web sites were targeted to a specific forum. In both cases the courts held that the Web sites did not have enough contacts with the forum in which the plaintiff had tried to bring suit. If those plaintiffs want to pursue their libel claims, they will be forced to file their suits in the states where the Web sites are hosted. In *Banco Nacional de Mexico*, the court dismissed the claims because the defendant simply did not have enough contact with New York.

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[127] Spataro.
[128] Kurt Wimmer, "International Law and the Enforcement of Foreign Judgments Based on Internet Content," August 2002, available at http://www.ldrc.com/Cyberspace/internation%20Internet%20Libel.pdf.
[129] *Id.* at 18.
[130] Spataro, page 9.

The courts in these three cases focused their inquiries on contacts and the targeted forum rather than on the question of where publication takes place and where the plaintiff's reputation may have been damaged, as the Australian High Court did. Although the prison warden in *Young v. New Haven Advocate* claimed he should be able to bring suit in Virginia, where his reputation resided (the district court agreed), the appeals court held that the test should instead inquire about the number of contacts the defendant has in Virginia and to which forum the Web site is targeted.

Will the complaint before the United Nations Human Rights Commission result in any changes? Justice Kirby's concurrence in the *Gutnick* decision actually refers to the International Covenant of Civil and Political Rights, writing that if Australian common law does not provide appropriate legal protections, it should be "rendered accountable to the relevant treaty body. . ."[131]

The California court that is allowing a copyright suit against the Kazaa parent company also used the minimum contacts test to determine that there was more than ample evidence that Kazaa was being used in large numbers in California. Barring that, certainly there would be more than enough contacts across the country to allow the suit to go forward in a United States court.

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[131] (2002) HCA 56 (Aus.) ¶ 116.

The question does not appear to be whether United States companies will face libel and other suits in foreign jurisdictions as a result of the material they upload to a Web site. With no international in place barring suits in the plaintiff's home countries, United States publishers will continue to face those suits. But it appears that the companies will have some recourse by returning to the United States court system to ask that foreign judgments not be enforced.

The *Yahoo!* court failed to enforce the French court's order because the order suppressed the United States company's First Amendment rights to free expression.

The Uniform Foreign Money-Judgments Recognition Act of 1962 and the Uniform Enforcement Act of 1964 were used by the court in the *Matusevitch v. Telnikoff* case. The foreign judgment must first be recognized, although some United States courts have refused to recognize judgments from foreign courts "on public policy grounds."[132] The Matusevitch court declined to recognize the judgment before it because the British libel standards under which the judgment was decided were "repugnant to the public policies" of the state.[133] The court found that the British court instructed the jury to ignore the context in which the allegedly defamatory remarks were made,[134] the plaintiff would have been considered a limited purpose public figure in the United States because he was "a prominent activist for Human Rights in the Soviet Union since 1955, and would have been forced to prove actual malice, which the court did not believe had been achieved.[135]

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[132] 877 F. Supp. 1, 3.

[133] *Id.* at 4.

[134] *Id.* at 5.

[135] *Id.*

It appears that no international treaty in the near future will require that defamation cases be brought only in the country where the content providers have their main offices and upload their content to their servers. While publishers of Web sites in the United States may not be able to halt the filing of defamation suits in foreign countries, and they might not be able to get a United States court to stop the defamation action in a foreign country, it appears that Web publishers do have some recourse. They should be able to fight the enforcement of any judgment made against them if they would have prevailed under United States libel laws — provided they have no foreign assets — by appealing to a United States court that the judgment violates the country's public policy. In fact, such a foreign judgment would violate the First Amendment.

CT+P

THE TV THAT WATCHES YOU:

Privacy Concerns Involving TiVo

Kevin D. Williams

M.A., University of Georgia

B.A., University of Georgia

Address: Grady College of Journalism and Mass Communication
University of Georgia
Athens, GA 30602

Phone: 706-769-4822

Email: kevnwill@arches.uga.edu

THE TV THAT WATCHES YOU: Privacy Concerns Involving TiVo

With the advent of TiVo, television watchers are promised that their prior way of viewing television is about to change. TiVo prophesizes that the days of the blinking "12:00" on everyone's VCR are long gone, replaced by TiVo's ease of use. Another marketable quality of TiVo is that the machine can make guesses as to what programs you may want to record based on prior use and will record these shows without the user ever touching a button. In short, while you are watching television, TiVo is watching you and collecting data as to your viewing preferences. Not only does TiVo keep a log of your viewing preferences, but it also sends that information back to TiVo's computing headquarters. This often forgotten-about fact has resulted in many complaining that TiVo violates a viewer's privacy. The current analysis focuses on 1) what is TiVo, what information does TiVo collect, and why does TiVo collect it, 2) what privacy issues are raised and argued because of this data collection, 3) what legislation might similarly address privacy concerns regarding TiVo, and 4) the author's opinion on how to legislate privacy concerns regarding TiVo.

1A. What is TiVo?

Hitting the market in mid 1999, TiVo emerged as one of the first digital video recorders (DVR), also known as personal video recorders (PVR). The concept of TiVo is similar to that of a VCR except that the program is recorded to a hard drive instead of a cassette. TiVo connects to a viewer's current television setup, be it cable, satellite, or broadcast, and can digitally record several hours of programming. The fact that the machine is hard-drive-based gives the machine added functionality: the device downloads current television schedules which the user can browse and select future shows they wish to record. A user can also perform a search operation which will look for programs based on certain genres (sci-fi), actors (Tom Hanks), program titles ("Friends"), director (Steven Spielberg), or favorite team (Maple Leafs). This ability is expanded in the fact that the user can enter one of these categories and the machine will continuously look for these shows in the future and record them without the user having to select individual shows. In other words, telling the wish list to search for a Maple Leafs game will allow the machine to record any future games played as they air.

Since the machine is computer based, it can keep a log of what programs you watch and record. One of TiVo's main selling points is that this log is utilized to make guesses regarding what type of shows one would like to watch. For example, TiVo recognizes that in viewing Maple Leafs games the viewer may also like other Toronto sports teams and will record any Blue Jays games. Upon looking at the recorded shows list, a viewer can either give the show a "thumbs-up" or "thumbs-down." This action tells TiVo that either it made the right guess or wrong guess. Over time TiVo "learns" the viewing preferences of its user.

One can already imagine the delights or the nightmares created by this ability to guess and log programs. If one enjoys most sci-fi movies and typically forgets to set the TiVo to record shows, then the ability is highly advantageous. On the other hand, imagine watching a program that may have a controversial subject (child abuse or homosexuality) and having the TiVo log that as a preference. This, of course, would mean that in the future TiVo would record programs that had some tie-in to child abuse or homosexuality. If the viewer forgot to give the "thumbs-up" or "thumbs-down" decision, the hard drive could literally fill up with shows focused on homosexuality or child abuse. This in fact has been noted to happen in the case of homosexuality.[1] Since TiVo's algorithms are not perfect, it is safe to say that the machine could record programming that an owner does not want taped and in fact be totally contrary to the owner's preferences.

1B. What Data Does TiVo Collect?

Keeping track of such sensitive data as gay programming has many TiVo users and those in the privacy area concerned. The information on programs watched and recorded is not only logged by the device but is also sent to TiVo's computing headquarters. The implications behind finding out such sensitive information could be life-altering. Imagine a log becoming public showing the titles of pornographic movies viewed by a priest. Imagine discovering that a politician who espouses family values has a long list of gay-themed shows on their TiVo. Discovering one's personal viewing habits may seem far-fetched, but in fact the issue has come up before. During Robert Bork's confirmation hearings for Supreme Court Justice, a list of Bork's history of video rentals from a store he and his family frequently visited was later published in the papers for everyone to see.[2] Bork's appointment was not confirmed (not because of his rental history), but in the wake of this event the Video Privacy Protection Act of 1988 was passed. With activists arguing that TiVo's collection of viewing data violates privacy interests, it is important to understand how and why TiVo collects the data and specifically what data it collects.

Upon the installation of TiVo, contact information pertaining to the user is entered through the setup menu. This information contains such items as name, address, telephone number, credit card information, and email address. Once setup is complete, this information is sent to TiVo's computing headquarters through a phone line that is connected to the back of the box. The device also uses this phone line to dial up TiVo's headquarters every night in order to obtain a program schedule particular to that user's zip code. Along with downloading the current program schedule, the device also uploads certain requested files. The files that are uploaded are one of two types. The servers back at TiVo's headquarters collect both diagnostic files and personal viewing information files.

Diagnostic files contain information regarding the hardware operation of the actual TiVo device. This file includes the device's serial number. Although the diagnostic file does not contain any personally identifiable information (contact information), the information could be linked with the device's serial number if TiVo so chose. This information was already obtained when the subscriber set up the device. Information contained in the diagnostic file informs TiVo of the device's memory consumption, user interface response time, disk space, motherboard temperature, fan speed, and system status reports. The diagnostic file is not always requested when the TiVo service is dialed every night. TiVo's computers randomly select subscribers and obtain their diagnostic files. Every night around 3% of all machines actually send a diagnostic file to TiVo headquarters.

An example of a diagnostic file would include the following lines of code[3]:

```
Jan 13 06:29:44 (none) fancontrol[54]: The current board temperature is 41
Jan 13 06:29:44 (none) fancontrol[54]: Setting the fan speed to 9
Jan 13 06:39:44 (none) fancontrol[54]: The current board temperature is 37
Jan 13 06:39:44 (none) fancontrol[54]: Setting the fan speed to 0
Jan 13 17:42:10 (none) LogTime[94]: WatchTV: change the channel: 0.015 sec
Jan 13 17:42:55 (none) LogTime[94]: Lineup: update the OSD: 0.949 sec
Jan 13 17:42:56 (none) LogTime[94]: Lineup: arrow up/down: 0.011 sec
Jan 13 17:42:57 (none) LogTime[94]: Lineup: arrow up/down: 0.009 sec
```

As one can see in the last few lines, the information also contains actions caused by the user such as pressing buttons on the remote control; however, this file does not contain any specific information regarding programs viewed.

The personal viewing information file does include such information as programs viewed. A personal viewing file is broken down into two categories: personally identifiable viewing information (PIVI) and anonymous viewing information (AVI).[4] In most cases these files are AVI since by default TiVo subscribers are counted as anonymous viewers. Some subscribers are asked through random surveys if they would like to volunteer to take part in research which would link their viewing preferences to their serial number; therefore, all PIVI files have been consented to and are considered an opt-in decision. The extraction of these files requires some explaining.

When the actual device is connected at night to TiVo's headquarters the central server knows whether the subscriber has opted-in or not in regards to PIVI. If a subscriber has opted-in, the file is sent straight to headquarters without any renaming. The serial number of the device is apparent in this file. If the subscriber has not opted-in then the computer sends the command "Randomize" to the device. In this case a random number is generated and replaces the actual serial code of the device.

The filenames requested by the central server look like the following: [5]

```
/TiVoData/bprv/20010124/000000.RANDOMIZE.80208.bz2
/TiVoData/bpub/20010124/184023.00840336485942.log.bz2
```

The first file labeled "bprv" is the viewing information file. In this case the subscriber has not opted-in and therefore the command reads "Randomize." The file labeled "bpub" is the diagnostic file which clearly indicates the device's serial number (in this case 0080336485942).

When the files are sent back to the main computer, they are deposited into two different directories: the public ("bpub") and the private ("bprv"). The deposited files look like the following: [6]

```
/TiVoData/bprv/20010124/000000.C41CF33D1DC7F401.80208.gz
/TiVoData/bpub/20010124/184023.00840336485942.log.gz
```

In this case the TiVo device has altered the "bprv" file, replacing the text "Randomize" with the numbers "C41CF33D1DC7F401." Also, this file does contain the zip code of the device, "80208," which is at the end of the name. The date of the file generation is also noted with the number "20010124," which stands for January 24th, 2001.

Of course, the content of the bprv file is the prize jewel to TiVo. Within the file, lines of code describe what the viewer actually watched and when. A sample line of code may look like the following: [7]

```
980389559|WatchTV|recorded|KDVR|3134603|980127000
```

The numbers at the beginning of this string (the number starting in "980") is a timestamp indicating when the viewer began watching a show. The numbers at the end of the string (also starting "980") tell when the show was originally recorded. These numbers represent how many second have passed since January 1, 1970. KDVR is the station where the show originally aired. The number "3134603" is a number given to a particular program (in this case *King of the Hill*). This is why a zip code is included in viewing information. Programming may vary over an area; thus, tracking the zip code informs a reader as to what television schedule should be referenced. After receiving the anonymous viewing information the file is placed onto one of 10 different directories, essentially scattering the AVI files. Every 30 seconds these files are re-scattered and placed randomly in different directories. Every three hours, the servers erase all time stamp information associated with the files and deposits the files contained in the 10 directories into one single file and sends the file to a restricted access server.

1C. Why Does TiVo Collect This Data?

From this description of what data is collected, the next question of why the data is collected emerges. Matthew Zinn, Vice President, General Counsel, and Chief Privacy Officer for TiVo states the following:

1) Anonymous viewing information is collected to determine what programming subscribers like to watch, skip, or record. This information helps TiVo make inferences on what future programs a viewer might enjoy. Anonymous viewing information can be shared with third parties as long as it remains anonymous.[8]
2) Diagnostic information is collected to evaluate technical problems with the devices. This information is only shared with manufacturers attempting to remedy the malfunctions.[9]
3) Personally identifiable information is collected to help TiVo conduct audience surveys and measurements.[10]
4) Account Information is collected to help facilitate the providing of services. TiVo does have contracts with other billing agencies and manufacturers and shares this information with those groups in order to provide the TiVo service.[11]

It is important to note that there are other service providers, such as DIRECTV, that offer their own collaborative TiVo system (in other words, a combination device that acts as both a satellite receiver and TiVo PVR).

Zinn is basically restating that AVI cannot be linked to any personally identifiable information, and PIVI has to be consented to and opted-in. What Zinn also states regarding anonymous viewing information is that TiVo shares "top line" (we are not given a definition for "top line") anonymous viewing information with third parties such as advertisers and cable networks. This viewing by third parties, be it advertisers, cable networks, or TiVo employees, is what has spurred privacy concerns over TiVo's collection of data.

2. Privacy Arguments

In March of 2001, two years after the initial launch of TiVo, The Privacy Foundation and the University of Denver Privacy Center published the results of a 4-month independent investigation concerning the privacy issues regarding TiVo. Among the initial findings were the following: 1) TiVo gathers enough information to track individual users' home viewing habits while apparently promising not to do so, 2) TiVo could identify the personal viewing habits of subscribers at will, and 3) TiVo has a much more explicit privacy policy disclosure on its website than in the printed material that accompanies the purchase of the product.[12]

These three arguments are the basis for the concerns over privacy regarding TiVo. This publication led Congressional members to write to the Federal Trade Commission (FTC) and ask for an investigation into TiVo's privacy policy.[13] This letter to the FTC combined with the Privacy Foundation's investigation caused TiVo to write a response[14] to the FTC addressing the issues brought up by the Foundation's report; thus, the battle between the two groups began.

The Privacy Foundation argues that even though the viewing information file may be called anonymous there is a way to re-identify the information. If the subscriber's receiver is picked to include a diagnostic file, the two files will be sent simultaneously back to TiVo headquarters. While one of the files may not include the serial number of the receiver, the diagnostic file will include that information. Therefore, if anyone were to intercept this transmission of data, they could link the viewing data with the serial number through the diagnostic file. The foundation also argues that logging when the files arrive (a.k.a. ftp logging) could lead to a time stamp that could used to match files together.[15] This activity constitutes the Foundation's first two claims that TiVo gathers enough information to link viewing habits with a specific person and could do so at will.

The third argument the Foundation poses is that there is no consistency between privacy policies published by TiVo. The Foundation states that the privacy policy on TiVo's website is more detailed than in the printed manual that accompanies the actual receiver and that the privacy policy overall misrepresents what data TiVo actually collects and how it collects that information. The manual that the Foundation had acquired stated that, "Personal viewing information which identifies you or your household's TV viewing practices belong to you, and no one outside your home, not even the TiVo staff or any of TiVo's computer systems, will have access to it without your prior consent."[16] When defining anonymous viewing information the manual states, "(Anonymous viewing information) is not linked to you or your household in any way."[17]

The Privacy Foundation argues that this statement misrepresents how TiVo's file transfers actually occur. The Foundation argues that TiVo could at any time use time stamping to correlate diagnostic and viewing information files to determine who watched what and when. In this regard, the Foundation argues that employees and computer systems do have access to viewers' watching habits and that AVI can be linked to individual households.

The final policy argument by the Foundation regards the discrepancy between the manual policy and the policy as stated on TiVo's website. The Foundation claims, and rightly so, that the policy on the web is more detailed than that of the manual. The website policy gives full definitions of terms such as PIVI, AVI, contact information, and account information. The manual obtained by the Foundation stated that, "Our privacy policy may change over time. In addition to posting any changes on our website, www.TiVo.com, we will provide or send a notice to each TiVo customer before any changes are implemented."[18] The Foundation argues that it is unfair to expect a user to browse the Internet in order to be informed of the latest privacy policy changes. In the closing of the website privacy policy and in the manual privacy policy it is stated, "Use of your Recorder with TiVo will signify your acceptance of the Privacy Promise."[19] This is another bone of contention with the Privacy Foundation who claims, "It is hard to believe that users without Web access truly signify their acceptance of this disclosure, which they have not read, simply by using the device under the assumption that the privacy policy included in its manual was complete."[20]

Of course, TiVo has a response to all of these claims and most are stated in Zinn's response to the FTC.[21] Zinn right off the bat mentions that the Privacy Foundation's study was conducted with an older version of the device, an "inescapable byproduct of retail distribution," and therefore has long been outdated. Zinn goes on to say that the current manual includes the same definitions and descriptions as the website and that TiVo owners are told to regularly visit the website for any amendments to the privacy policy.[22]

The Privacy Foundation contends that it is unfair for TiVo to expect users to log on to the website to check for amendments to the privacy policy, especially since not all users may have web access. Zinn points out that not only does TiVo print its policy changes on the website and in current manuals, but it also emails users new changes (Mr.

Zinn seems to neglect the fact that those without web access may not have email addresses) and sends notices of changes in policy through messages via the TiVo system itself. All TiVo systems have a message center where messages from TiVo appear and can be viewed at any time. Zinn notes that the policy change in September of 2000 (which caused the discrepancy between manual and website), was broadcast on every user's message center.

Regarding the re-identification of viewing information, Zinn attacks on multiple points. Zinn points to the fact that the Privacy Foundation arguments are based on what TiVo "could" do, not on what TiVo "actually" does. Not every transfer contains both diagnostic and viewing information files. Zinn argues that TiVo has gone to great lengths to design a system that protects anonymity as closely as possible except where a subscriber has opted-in to having their PIVI noted. He also brings up another point: the privacy policy states that any user can call TiVo's toll free number and opt-out of any data collection whatsoever. A TiVo subscriber can call TiVo and ask that no information (including diagnostic, AVI, or PIVI files) be collected. This, of course, excludes the initial contact information needed to activate the system; but this option keeps all viewing information on the hard drive and does not allow it to be collected by TiVo headquarters.

Regarding the time stamp of ftp logging, Zinn's response is simple: the time stamp is erased from the files every 3 hours. This becomes a sticky situation because for 3 hours starting from the initial deposit the files actually could be correlated if a deviant employee decided to do so. Again, this is assuming that there is a corresponding diagnostic file. TiVo states that it has always been and will always be committed to the privacy of its users. For now, it seems that TiVo has resolved itself not to share any identifying information beyond those third parties with whom they have contracted. Zinn is quoted in *USA Today* as saying, "We don't disclose personally identifiable information as a matter of policy, and we won't as a matter of policy."[23] The next quote in that article is by Jim Barton, TiVo technology officer, who claims, "We could modify our systems to do so, but we're not."[24]

Barton's statement seems to let the cat out of the bag. TiVo repeatedly promises that it does not, and even cannot, access any personally identifiable information without the user's consent. Barton's claim refutes the "does not" promise in the prior statement and sheds light that TiVo can, in fact, modify the system to do so. This future promise of privacy has been made before by other companies, such as Amazon.com[25] and Toysmart,[26] and not held its weight. These companies promised never to divulge personal data to third parties without customer consent but later re-defined "personal data" in such a way that they saw fit to sell that information. If this is a routine path for companies who collect such personal data, it seems unavoidable that TiVo will eventually attempt to sell the data it has collected. Richard Smith, Privacy Foundation technology officer, agrees, "Right off the bat, we have a trust problem here. There's no laws around this to cover it; they're (TiVo) free to do whatever they choose."[27]

3. Existing Relevant Legislation

While Mr. Smith is correct in saying that there are no laws which specifically address TiVo, there are laws that could be considered relevant to the current privacy concerns, most notably those that relate to cable privacy and computer privacy. If one thinks about it, TiVo essentially is just a channel (or device) through which already established programming flows through and is also a computer in the fact that it has a hard drive that stores information. Likewise most of the laws written for cable and for computers are analogous to TiVo's operations. The main laws pertaining to TiVo can be found in the Cable Privacy Act of 1984, the Stored Wire and Electronic Communications and Transactional Records Access Section of the Electronic Communications Privacy Act of 1986, and the Video Privacy Protection Act of 1988.

The Cable Privacy Act of 1984[28] places protections on the privacy of cable subscribers. It is important to note that TiVo's privacy policy reads very closely to that of most cable operators.[29] The Cable Privacy Act covers a myriad of topics but specifically legislates the following:

- The privacy policy must tell the user of the nature of the personally identifiable information collected and the nature of the use of such information.
- The privacy policy must identify the types of third parties that may be privileged to such information.
- The privacy policy must tell the user the time and place in which the user may obtain access to the their own personal information.
- The disclosure of personally identifiable information such as viewing habits must be consented to by the subscriber.
- A disclosure of personally identifiable information can be made without consent if it is necessary to the operation of the subscription (in other words, to repairmen, billing agents, and installers). In this case no information regarding viewing can be disclosed.
- "Personally identifiable information" does not include any record of aggregate data which does not identify individual persons.
- The cable operator must destroy all personally identifiable information once the information is no longer needed to render a service (in other words, once the subscriber has terminated their service).

As can be seen by comparing this statute and TiVo's privacy plan, it appears that TiVo does not violate any laws regarding the Cable Privacy Act. TiVo tells the user in its privacy policy what information is collected, defines terms such as "personally identifiable information" and "anonymous viewing information," tells why the information is being collected, and tells the user that PIVI may be shared with third parties. Furthermore, the policy states that viewers must consent and opt-in in order to have their PIVI tracked. There is no violation caused by the collecting of AVI because consent rules, like those regarding PIVI, do not pertain to aggregate information that does not identify individual persons. TiVo also says in its policy that a user "may make a request by telephone, mail, or via the web (when available) to review your Account Information and we will mail you a printout of your Account Information."[30] It appears that the fact that users can opt-out of any data collection whatsoever is just icing on the cake.

Of course, the natural response to this argument would be that this statute was intended for cable operators and is therefore not relatable to PVR's such as TiVo. The history behind the statute strikes at the same concerns that are being raised now by TiVo. In *Scofield v. Telecable*, Judge Anderson notes:

> The section (551) was included in the Act in response to Congress's observation that: "Cable systems, particularly those with a two-way capability, have an enormous capacity to collect and store personally identifiable information about each cable subscriber."[31]

This argument would lead one to believe that Congress was not so much concerned with what particular broadcast method (cable, satellite, broadcast, or even TiVo-like set-top boxes) was collecting the data, but rather was concerned about technological advances could affect privacy rights.

Scofield is also important in that it addresses the Privacy Foundation's concerns that the first privacy policy of TiVo was not as extensive as later versions. Judge Anderson found in the case that a policy does not have to be perfect; it simply needs to be clear, conspicuous, and inform the public as to what it is legally responsible for telling them.[32]

The Stored Wire and Electronic Communications and Transactional Records Access section (a.k.a. the Stored Communications Act) of the Electronic Communications Privacy Act of 1986[33] looks at TiVo in a very different light: that of a computer instead of a cable provider. In this regard the Act legislates transmitting the files over the telephone back to TiVo's headquarters. Many privacy advocates argue that storing these files containing personally sensitive information on the hard drive of the TiVo violates personal privacy and the Stored Communications Act.

Much of the discussion treats TiVo like a computer in that the collection of data by TiVo is similar to the concept of "cookies"[34] on a computer. This is the same concept behind tracking viewing behavior on TiVo. TiVo is tracking what I watch so that it may suggest and record similar programming for me. This information may also be distributed to third-party advertisers if I consent to the distribution.

This tracking ability, either by a website or by TiVo, however does not violate any laws regarding the Stored Communications Act. Many cases involving cookies claim that such tracking violates the statute because stored electronic information is gathered by an intercepting force. These cases are rarely won in court and are frequently dismissed. The Stored Communications Act basically states that:

1) whoever intentionally accesses without authorization a facility through which an electronic communication service is provided; or
2) intentionally exceeds an authorization to access that facility; and thereby obtains, alters, or prevents authorized access to a wire or electronic communication while it is in electronic storage in such system shall be punished.[35]

This is to say that privacy advocates believe cookies violate the Stored Communications Act because a user has an agreement with their Service Provider (such as BellSouth) to browse the Internet. These advocates argue that a website tracking your activity acts as an interceptor in that it accesses your stored surfing preferences from your computer. If this argument seems obfuscated, then it is easy to understand why most of these cases are dismissed.

A shining example of this argument is brought about by Judnick v. Doubleclick, Inc.[36] Doubleclick, a large Internet advertising service, is affiliated with several websites (Alta Vista and Macromedia to name a few) and has an agreement with those sites that information obtained through those sites be gathered by Doubleclick. This information helps Doubleclick tailor advertising to a user when they visit another affiliated website. Judnick, on behalf of the General Public of the State of California, contended that Doubleclick had no right to gather information on her personal browsing habits. Judnick argued that Doubleclick acted as an interceptor because she was having a communication with a particular website (maybe a Macromedia site for example) and Doubleclick was a third party collecting the data from that action. In this case the argument is not that cookies acted as interceptors between a surfer and the service provider but rather that Doubleclick's cookies acted as an interceptor between a surfer and a specific website they were browsing. The court saw differently.

Doubleclick argued that its behavior was exempt from the Electronic Communications Privacy Act (ECPA) because it was authorized by its clients (one of whom was the website that Judnick was visiting) to collect that information. The court believed that Doubleclick's actions constituted an interception of electronic communications between plaintiffs and Doubleclick's clients (a website affiliated with Doubleclick). Unfortunately for Ms. Judnick, the court, referencing the ECPA, [37] noted that the website Ms. Judnick was viewing was a client of Doubleclick which had consented to such interception. The judge eventually dismissed the case on several grounds, one of which was that the suit lacked merit because Doubleclick's actions did not violate the ECPA.

The relation of this case to TiVo is simple. Tracking websites is similar to tracking programming. A privacy advocate could argue that a television viewer is a participant in a communicative transaction between themselves and their cable, satellite, or broadcast provider and that TiVo effectually intercepts these transactions by tracking them, logging them, and storing them on the hard drive. As seen in this case, however, this argument would unlikely succeed in court since all TiVo users consent, upon using the service, to have viewing information gathered either anonymously or as personally identifiable. Again, the user also has the ability to opt-out altogether of any data being collected. Doubleclick as well had an opt-out option in which the cookie could be eliminated by visiting a website and signing up for the opt-out. This point as well was brought up by the court.

Tracking viewing preferences has also become a behavior which is legislatively regulated. It seems that the major worry of the Privacy Foundation is that the information containing an individual's viewing habits would become public knowledge. This fear has already surfaced. As mentioned before, Judge Robert Bork's list of video rentals was released to the public when he was undergoing confirmation for the Supreme Court. This release of information spurred the Video Privacy Protection Act (VPPA) of 1988.[38] Among several of the limitations of the Act, the VPPA includes:

- A video tape service provider who knowingly discloses, to any person, personally identifiable information concerning any consumer of such provider shall be liable to the aggrieved person…;

- A video tape service provider may disclose personally identifiable information concerning any consumer;
    - To the consumer;
    - To any person with the informed, written consent of the consumer given at the time the disclosure is sought;
- A video tape service provider must destroy rental records no longer than one year after the account is terminated

This statute has been presented in court before. In *Camfield v. City of Oklahoma City*,[39] a resident of Oklahoma complained that the movie *The Tin Drum* contained child pornography and violated Oklahoma law. A judge agreed that it was child pornography and ordered the police, who did not have a warrant, to collect from local video stores the names of people currently renting the film. Police went to Mr. Camfield's house and seized the video. The court later found that this action violated Mr. Camfield's rights under the VPPA.

It could be argued that TiVo has nothing to do with this law in that it is not a video service provider. The Act's definition of "video tape service provider" could be construed, however, to include TiVo. As defined by the statute, a video tape service provider "means any person, engaged in the business, in or affecting interstate commerce, of rental, sale, or delivery of prerecorded video cassette tapes or similar audio visual materials…"[40] The question then becomes: Is TiVo engaged in the business of delivering prerecorded audio visual materials? This question has not yet come before the courts.

One sticky point of the Act is that it allows video tape service providers to disclose without consent, as long as the consumer has the option to opt-out, genres or subject matter of audio visual materials to third parties for the "exclusive use of marketing goods and services directly to the consumer."[41] The question here is whether or not TiVo as a video service provider could legally tell marketers that a viewer likes to watch pornography in order for a marketer to sell products to that user. The question has already been answered, however, in TiVo's privacy policy. Again, TiVo warns clients that it does collect personally identifiable viewing information and discloses it to third-party marketers, but the user has to consent or opt-in for the information to be collected. In short, according to TiVo's policy even materials given to third-party marketers must be consented to by the user.

Having looked at these three statutes (the Cable Privacy Act, the Stored Communications Act, and the Video Privacy Protection Act), it is hard to find evidence that TiVo violates any privacy laws currently enacted by the U. S. Government. TiVo's privacy policy seems to meet all the standards under these statutes much the same way that cable operators' privacy policies appear to be legal as well; therefore Richard Smith's claims that TiVo could do anything it wishes may not have merit.

4. The Future Path to Legislating Privacy Concerns Regarding TiVo.

While there may be similarities, TiVo is not a cable operator. It is neither a conventional computer nor a video store such as Blockbuster. TiVo is a new device that watches the viewer at the same time that a viewer watches television. There are current statutes that regulate devices and industries that are analogous to TiVo, but there is no single statute that specifically is tailored to answer TiVo's privacy issues. As devices like TiVo evolve, so to will privacy questions that have not been previously considered in the courts. One thing is for certain: subscribers to such devices as TiVo are gathering in numbers;[42] and, therefore, one can only say that with such growth new questions will eventually be brought forward.

The rise of these questions brings one to ponder how such legislation will be constructed to deal with the privacy issues that a device like TiVo will invite. Although the previously mentioned statutes address mediums, devices, and industries similar to TiVo, there are no specific laws regulating how TiVo must handle privacy concerns. In my opinion, a specific law will have to be tailored to deal with TiVo's privacy concerns. It would be ideal to think that a law could be constructed to adequately address privacy issues for both TiVo and for whatever technology evolves as an offshoot from TiVo; however, it is important to realize this task will almost be impossible without the help of a crystal ball that will tell us exactly what will develop from the technology. As Daniel Solove, information privacy expert, notes, "In a world constantly being transformed by technology, how can we erect a robust and effective law of privacy when the ground is constantly shifting?"[43] Solove argues that trying to generalize and conceptualize privacy into overarching terms in order to construct omnibus privacy laws is only self-defeating. Instead he argues, as do I, that privacy concerns are best addressed in the specific contexts in which they are raised.[44] This is essentially the basis for my argument that any law enacted to address TiVo's privacy concerns will have to be specifically tailored to address TiVo's particular technology, that of logging a person's video content. Such a law would have to be tailored to discourage and punish those interested in obtaining a person's television viewing habits.

This is not to say that we cannot take the statutes of the past and modify them to fit the current situation. Indeed, laws such as the Video Privacy Protection Act regulate a comparative situation that the Privacy Foundation is chiefly worried about: someone obtaining personal information about one's viewing habits. Also, I believe that it will take a violation similar to that brought against Robert Bork to act as a catalyst in creating any new law. It is not hard to imagine that some computer hacker could illegally obtain a list of television shows watched by someone of importance and then give the list to someone to publish. While the hacker may be charged with violating the ECPA, a specifically tailored privacy statute could punish someone who published information relating to a person's television viewing habits.

Although there seems to be no legal improprieties taking place within TiVo's privacy policy, I feel that there could arise situations outside of the company's control that violate one's personal privacy (the aforementioned hacker is one example). Being that this is a possibility, it is unforeseeable to me how a statute protecting the privacy of one's television viewing habits could harm the legal arena. It is hard to predict the future but it is easier to recognize that the change in technology will evoke new considerations in privacy laws. As Warren and Brandeis state:

> That the individual shall have full protection in person and in property is a principle as old as the common law; but it has been found necessary from time to time to define anew the exact nature and extent of such protection. Political, social, and economic changes entail the recognition of new rights, and the common law, in its eternal youth, grows to meet the demands of society.[45]

Endnotes

1. *See* Jeffrey Zaslow, *If TiVo Thinks You Are Gay, Here's How to Set it Straight*, available at <http://online.wsj.com/article_email/0,,SB1038261936872356908,00.html> (last visited December 12, 2002). As reported in the *Wall Street Journal*, actor Mike Binder (of the HBO show, *The Mind of the Married Man*) recorded a movie he had starred in called *The Sex Monster*, which was about a man whose wife decides to become bisexual. After the recording, TiVo decided to start recording gay programming for Mr. Binder. The article goes on to mention other wrongly-guessed users such as Lukas Karlsson who gave the "thumbs-down" on religious programming and was thus bombarded with programs focusing on serial killers and homicides.
2. *See* Electronic Privacy Information Center, *EPIC Video Privacy Protection Act Page*, available at <http://www.epic.org/privacy/vppa/> (last visited December 12, 2002).
3. *See* Privacy Foundation, *TiVo's Data Collection and Privacy Practices*, available at <http://www.privacyfoundation.org/privacywatch/report.asp?id=62&action=0> (last visited December 3, 2002).
4. *Id.*
5. *Id.*
6. *Id.*
7. *Id.*
8. TiVo, Inc., *White paper Submitted to the Federal Trade Commission*, available at <http://www.TiVo.com/pdfs/ ftc_letter.pdf > (last visited December 03, 2002). at 16. "As described in its privacy policy, TiVo staff members use Anonymous Viewing Information to analyze what programs, advertisements, and types of programming subscribers watch, skip, or time-shift for later viewing. For example, TiVo uses Anonymous Viewing Information to develop inferences that people who watch show X are likely to watch show Y. TiVo shares certain "top line" Anonymous Viewing Information with advertisers, cable networks, and other third parties. This information is not identified with any particular subscriber. TiVo has no other plans for future uses of Anonymous Viewing Information. Whatever such future uses may be, they will comport with TiVo's core promise: viewing information will remain anonymous unless subscribers consent before such information has left the Receiver."
9. *Id.* "TiVo uses Diagnostic Information to assess technical problems both with the hardware on individual receivers and with the software, which may affect large numbers of receivers. This detailed information is not shared with third parties, except that the overall results may be shared with manufacturers to determine the source of and corrective action needed for specific hardware and/or software problems. Diagnostic Information log files must include the receiver serial numbers in order for TiVo to identify and correct faulty receivers."
10. *Id.* "Personally identifiable viewing information resides in the receiver. Without a subscriber's prior consent, no "tag" is added to viewing files transmitted from receivers to TiVo Broadcast Center's servers that would enable TiVo to identify

the receiver from which it came. For those subscribers who have opted in to the collection of personally identifiable viewing information, TiVo may use this information for surveys of particular subscribers and audience measurement. TiVo has committed to notify subscribers who have opted in if TiVo plans to change the current uses of personally identifiable viewing information, and will give subscribers an opportunity to opt in to any such new uses."

11. *Id.* at 16, 17. "Account Information is disclosed to the appropriate service provider (*e.g.*, DIRECTV), where operationally necessary to facilitate the provision of service. TiVo also uses contractors and third-party service providers (*e.g.*, billing agents), who may have temporary access to Account Information and other Subscriber Information for specific purposes. TiVo's contracts bind these contractors and third-party service providers (*e.g.*, DIRECTV) to TiVo's privacy policies; specifically, contractors and third parties may collect and use Account Information only for the specific and limited purposes designated in those contracts (*e.g.*, bill collection)."
12. Privacy Foundation, *supra.*
13. U.S. House of Representatives, *Letter to FTC Regarding Privacy Policies*, available at <http://www.house.gov/ commerce_democrats/press/107ltr30.htm> (last visited December 03, 2002). at ¶2. "The simple fact is that most consumers are not comfortable with having someone or something watch them while they watch television. Privacy of the individual's viewing habits is an issue that Congress has already addressed in the context of cable television and video rentals. And, as in these cases, people clearly do not want their personal viewing choices to be known to others or involved in a criminal investigation or a civil proceeding."
14. *See* TiVo Inc., *supra.*
15. In other words a diagnostic file received on December 13th at 5:04:25pm could be matched with a viewing file received at the same time. Matching the serial number of the diagnostic file with the contact information that TiVo has already stored would give someone a complete record of viewing activity linked to a person's name.
16. Privacy Foundation, *supra.*
17. *Id.* at Second Disclosure Section.
18. *Id.*
19. TiVo, Inc., *TiVo Digital Video Recorder-Privacy Policy*, available at <http://a423.g.akamai.net/7/423/1788/3c5a51df7e75f5/www.TiVo.com/pdfs/privacy_policy_9_2002.pdf > (last visited December 12, 2002). at ¶2.
20. Privacy Foundation, *supra.*
21. TiVo, Inc., *White paper Submitted to the Federal Trade Commission, supra.*
22. Id. at 4. "outdated manuals are an inescapable byproduct of retail distribution of a new technology that is undergoing revisions to improve the service. Even (outdated) privacy policy in the user manual the Privacy Foundation used for its analysis was consistent with the updated version of the privacy policy on TiVo's website. Indeed, TiVo's privacy policy has consistently stated that the privacy policy is subject to amendment, and TiVo took steps to inform consumers of expansions of and clarifications to its privacy policy."

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23. *Privacy Group Slams TiVo*, available at <http://www.usatoday.com/life/cyber/tech/2001-03-26-TiVo.htm> (last visited December 11, 2002). at ¶6.
24. *Id.*
25. *See* Eric J. Sinrod, *Amazon.com's Privacy Policy Comes Under Fire*, available at <http://www.usatoday.com/tech/ columnist/ericjsinrod/2002-10-24sinrod_x.htm> (last visited December 12, 2002). Amazon.com used the same procedure as TiVo in that it collected information on particular users' preferences by taking note of what information the user browsed for on their search tool and by taking note of what items users purchased. Amazon had a privacy policy that said its personally identifiable data would not be sold to a third-party without the user's consent; however, Amazon later said that personal data may be transferred to another company if those assets were acquired by other business entities.
26. See D. Ian Hopper, *Toysmart Database to be Destroyed: Dot-com Tried to Sell Customer Information after Business Failed*, available at <http://abcnews.go.com/sections/scitech/DailyNews/toysmart010110.html> (last visited December 12, 2002). This is another case in which the company re-defined the personal information it collected as company assets. Toysmart was an online toy retailer that had a similar agreement with its user much like that of Amazon. When Toysmart went bankrupt it was ordered to sell off all assets or pay off its creditors. Toysmart realized that it could sell the personal data it had collected on its users and avoid paying the $50,000 it owed to its creditors. A furor developed over this issue and it as well was brought before the FTC. Eventually Disney, which was the majority owner of Toysmart, paid the $50,000 owed to the creditors and promised to destroy the personal data.
27. *Privacy Group Slams TiVo, supra.* at ¶16.
28. 47 U.S.C. §551 (2002).
29. See Charter Communications, Inc., *Charter Cable Television and Internet Service Privacy Statement* (version 2.3), available at <http://www.charter.com/site/rules.asp#privacy> (last visited December 4, 2002).
30. TiVo, Inc., *TiVo Digital Video Recorder-Privacy Policy, supra.* at 6.
31. *Scofield v. Telecable of Overland Park, Inc.*, 751 F. Supp. 1499 (D. Kan. 1990), *rev'd* 973 F.2d 874 (10th Cir. 1992). at 5.
32. Id. at 20. "A disclosure does not fail to be 'clear and conspicuous' or 'meaningful' simply because a superior or more detailed statement could have been provided; the question is whether the disclosure offered is sufficiently clear.
33. 47 U.S.C. §2701-2711 (2002).
34. Cookies are used to track what websites an Internet surfer has visited. These cookies are generally placed on a user's computer by another website. The personal surfing behavior is stored on the computer and later sent back to the original website in hopes that the information will be used to tailor advertising to the user's preferences when that user returns to an affiliated website. In other words, a website employs a cookie on my machine which tracks my surfing and recognizes that I visit a lot of

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automotive sites. When I return to an affiliated website, advertising pertaining to cars may be displayed on that site.

35. 47 U.S.C. §2701-2711 (2002). at §2701.
36. *Judnick v. Doubleclick, Inc.*, 154 F. Supp.2d 497 (S.D.N.Y., 2001).
37. *In re Doubleclick Inc. Privacy Litigation*, 00 Civ. 0641, 154 F. Supp.2d 497 (S.D.N.Y., 2001). at ¶8. The judge referenced the Electronic Communications Privacy Act stating that it is a violation "to access without authorization a facility through which an electronic information service is provided…and thereby obtain… access to a wire or electronic communication while it is in electronic storage in such system…; the statute contains an express exception, however, exempting from its coverage "conduct authorized…by a user of that service with respect to a communication of or intended for that user."
38. 18 U.S.C. §2710 (2002).
39. *Camfield v. City of Oklahoma City*, 248 F.3d 1214 (10th Cir. 2001).
40. 18 U.S.C. §2710 (2002). at definitions, item 4.
41. *Id.* at Video Tape Rental and Sale Records, item 2, subsection D2.
42. There are currently over 460,000 TiVo Subscribers.
43. Daniel J. Solove, *Conceptualizing Privacy*, 90 Calif. L. Rev. 1087 (2002). at 1089-1090.
44. *Id.* at 1092. "My approach diverges from traditional accounts of privacy that seek to conceptualize it in general terms as an overarching category with necessary and sufficient conditions. In other words, I suggest an approach to conceptualize privacy from the bottom up rather than the top down, from particular contexts rather than in the abstract."
45. Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 Harv. L. Rev. 193, 193 (1890).

U.S. Local Commercial Television Broadcast Stations on the World Wide Web

by

Pi-yun An
Department of Mass Communication
The University of Southern Mississippi
piyunan@hotmail.com

Paper presented to the Communication Technology & Policy Division at the annual meeting of the Association for Education in Journalism & Mass Communication, Kansas City, Missouri, July 31,2003

Abstract

The purpose of this study is to investigate how the U.S. local commercial television broadcast stations have established their identity and deliver content in cyberspace and how they respond to improving Internet technology. By examining the content and mechanisms of current local broadcasters' Web sites, this study allows for comparison with previous research and provides a basis for future comparison studies of trends.

Introduction

It is been eight years since the first TV network, CBS, launched its Web site. Since then, all networks and the majority of the network affiliated stations have attempted to create a Web presence, but questions remain, particularly about how to make a Web site contribute to the success of the station or corporate owner of the station (Lou, 1998). The most common question regards what kind of content should be presented, and how it should be presented.

Unlike the national television networks, the local broadcaster, whose only locally produced on-air product is usually limited to local news, has struggled to define its role in cyberspace. With limited resources, local stations initiated Web sites with very little substance (Jessell, 1995). Most stations simply transferred text from the content they already produced for their local newscast (Anzur, 2001), or piped network and wire services information directly to their Web sites (Local news goes online, 2002). There was no new content that was specifically created for the Web sites—no more current, additional, or specific news stories beyond the latest news broadcast, resulting in a small amount of local news which usually ran without audio or video clips. The local stations' Web sites were most often just a secondary source of recycled on-air news stories or extensions of the broadcasting brand (Richardson, 2001).

When the commercial use of the Internet was in its infancy, several content analyses (Bates & King, 1996; Niekamp, 1996; Bates et al., 1997; Pines, 1999) were conducted to gain an understanding of how broadcasters coped with the convergence of traditional and computer mediated technologies. The results of these studies indicated that broadcasters considered the Internet as a promotional tool during its nascent stage with its potential capabilities yet to be fully realized. While the traditional broadcasting media showed signs of improving their Web offerings over the past few years, communication scholars seemed to stop examining Web sites operated and developed by television stations. In the first three years of the 21st century, very little research has focused on the broadcasters' application of the Web features.

Not only has the number of broadcasters' Web sites increased dramatically, but also the technology that drives the Internet continues to evolve, and people expect television Web sites to become more sophisticated (Kilsheimer, 1998), presumably to better meet their needs. Therefore, studies of local television station Web sites need to be conducted and compared with previous findings to see whether television broadcasters have developed sites that use the Web more effectively. The purpose of this study is to investigate how the U.S. local commercial television broadcast stations have established their identity and deliver content in cyberspace and how they respond to improving Internet technology. To determine if the presentation of broadcasters' Web sites was affected by any market characteristics, several possible external factors are reviewed in this chapter: (1) network affiliation; (2) market size (DMA); (3) ownership; and (4) type of Web site operation. Based on the review of previous studies, this study attempts to understand how the broadcasting industry combines the traditional strengths of broadcast television with that of evolving Internet technology.

Literature Review

The decade of the 1990s produced few studies attempting to understand the integration of television broadcasting and the Internet. During the technological infancy of the Web, Bates and King (1996) conducted a content analysis examining all U.S. television broadcasters with sites on the Web. The study included 43 major network affiliates, one UPN affiliate, four independent stations, and 13 public stations.

This preliminary study found that most television station Web sites were being used as a promotional vehicle for what was broadcast on each television station and did little to use or develop the Web's capability. The majority of the Web sites in this research were found to recycle recently aired news stories, used no visuals (e.g. graphics, still photos, or video clips), and lacked interactivity. Obviously, these early adopters were unsure about how utilize the Web.

The number of local television broadcasters' Web sites increased rapidly after 1995. Bates et al. (1997) conducted another content analysis, as a sequel to the Bates and King 1996 study. Compared to Bates and King's findings, the subsequent study noted that television stations improved in their use of the new medium, with greater use of interactive features and more visual elements. However, even though television Web sites seemed to be making greater use of the Internet's capabilities, their primary function remained promotion.

Niekamp (1996) directed another exploratory content analysis study examining 123 Web sites sponsored by television stations in the U.S. More than 80% of these television sites contained feedback mechanisms, and 77.2% contained links to program schedules. Also, more than 74% of these television sites had links to information about the stations' local news operations, for more than the 16.4% of sites with local news links noted by Bates and his students. A possible explanation behind the huge differences could be the definition of unit of analysis. Niekamp used the entire site as the unit of analysis, while Bates et al. only used the homepage and those links directly from the homepage.

In order to understand how broadcast station Web sites serve their own market area, another content analysis of 1,469 radio and television sites in the U.S. found that the most common function of such sites was self-promotion (Redmond, 1997).

Redmond identified five categories of content that broadcasters should provide when serving their markets through web sites: (1) useful market area general information; (2) market area public service information; (3) market area news; (4) audio/video options; and (5) a live video camera. Redmond suggested that commercial television stations' sites rated better than both commercial radio groups and public/educational stations' sites in all five content categories except for the use of audio/video clips. Generally, a smaller number of Web sites examined, less than 29%, contained audio/video technology, and only 2% included live cameras. While Redmond attempted to compare how commercial television stations, commercial radio stations, and public stations perform in cyberspace, one concern that other researchers might have is how to compare commercial stations with public stations in providing community news or information. These two samples are distinctive in nature, target different audiences, and provide very different levels of local news limiting the comparability.

More recently, Pines (1999) conducted a content analysis research which only sampled local commercial television Web sites. Non-commercial or public broadcast television stations were eliminated from this study. Pines analyzed 110 television Web sites to understand what kinds information were presented and whether multimedia and interactive technologies were used to present the content. Pines (1999) concluded that "station sites are not taking advantage of the full range of Internet possibilities, and thus, they are not living up the medium's potential" (p.1). Promotion and programming were the major purposes served by most local television Web sites; only e-mail and hyperlink mechanisms were widely utilized on the Web sites examined.

Chan-Olmsted and Park, who conducted a content analysis of 300 broadcast TV stations' Web sites in 2000, attempted to fill in the blanks. Chan-Olmsted and Park (2000) determined that local broadcasters ignored the Internet's capacity for interactivity and tended to limit their role as information providers in cyberspace.

> This study revealed the important role news-related content played on broadcast station Web sites and the stations transfer of their relevant on-air product to the online system. Overall, broadcast stations offered an online presence that is predominantly informational, with limited communication and transactional structures and rare entertainment and sociability opportunities. (p. 335)

Several studies have analyzed the role of market characteristics, including network affiliation, market size, market ranking, and station ownership, as factors influencing the content and structure of station Web sites. One more potentially relevant variable that has not been examined is the type of Web site operation. According to the summary of television station Web activity prepared by the National Association of Broadcasters (NAB) in 1998, 97.2% of CBS affiliates had Web sites followed by NBC (89.4%), ABC (82.5%), WB (56.5%), UPN (55.7%), and FOX (55.1%) (Savoie, 1998). As each network had specific strategies for utilizing the Internet, network affiliation was expected to affect the content, presentation, and interactivity mechanism of the local stations' Web sites (Chan-Olmsted & Park, 2000). Moreover, Web sites affiliated with the big three networks were expected to offer more sophistication than sites affiliated with three young networks (Pines, 1999). Niekamp (1996), considered network affiliation while comparing local broadcasters' Web sites but found no significant relationship between stations' network affiliation and the content of their Web sites. However, he did note that ABC and CBS affiliates tended to update current news on their Web sites more frequently than other stations affiliated with NBC, FOX, UPN, and WB. In a later study, Pines (1999) noted that the content of Web sites, especially the type of information provided, was strongly influenced by network affiliation. Overall, sites affiliated with ABC, NBC, and CBS provided more information than other sites. Chan-Olmsted and Park's (2000) findings bore out Pines' conclusion that sites affiliated with the three major networks had better performance than those affiliated with FOX, UPN, WB, and other independent stations in nearly all variables investigated. It appears that a gap exists between the three major networks' affiliated sites and other network and independent stations sites in providing news-related content.

In addition to network affiliation, earlier studies of local broadcast station Web sites have also examined the impact of market size or market ranking on Web site development and activity (e.g. Niekamp, 1996, Pines, 1999, Chan-Olmsted & Park, 2000). Since the television audience in the advertising marketplace is bought and sold in much the same way as commodities in other markets (Webster & Phalen, 1997), the larger the audience a station can reach, the higher the revenue a station can acquire. The DMA or Designed Market Area is a geographic unit used by Nielsen Media Research to define each local television market in the continental United States (Nielsen Media Research, 2002). The DMA ranking is a mutually acceptable point of reference in advertisers' and television stations' discussions about the marketing and audience.

Pines (1999) attempted to determine whether market ranking was related to content, presentation, and interactivity variables. His study revealed that the content of Web site, especially the type of information provided, was strongly influenced by market size. Overall, sites serving large markets provided more information than other sites. Chan-Olmsted and Park (2000) concurred that market ranking influences the content or performance of broadcast station Web sites: the sites in higher-ranking markets were more aggressive in providing information related content. The 2001 RTNDA/Ball State University Annual Survey covering 818 non-satellite television stations also found that stations located in larger or smaller markets showed different levels of Web news. However, major market stations' Web sites were far less likely to provide news. Only 83.3% of major market (DMA1-25) stations' Web sites included news, which was less than the stations in DMAs 26-50 (100%), DMAs 51-100 (93%), and even small DMAs ranked 101-150 (96.3%) (Papper & Gerhard, 2001).

Obviously, the finding of the Ball State study did not support some of the earlier research. Niekamp (1996) noted that no statistically significant relationship was shown in the correlation between market size and content of the Web site. A study by Kiernan and Levy (1999) also revealed that the content of Web sites was not related to stations' market rank; Kiernan and Levy claimed "competition is lacking among broadcast-related Web sites" (p. 275). Kiernan and Levy's explanations for this result took into consideration the immaturity of the Web development, noting that because the Web still was a young medium, competition had not become a driving force behind station Web sites. In addition, many television Web sites are maintained by computer technicians who do not understand the competitive values of the media industry. However, station Internet activities report prepared by the NAB in September 1999 suggested that the most common department responsible for maintaining the Internet content and operation was the news department. One concern of Kiernan and Levy's study is its small sample size (N=62).

Besides Chan-Olmsted and Park, no one has taken a serious look at the top station groups' Internet strategies or considered ownership as an influence on the local station's Web site. Chan-Olmsted and Park (2000) indicated that ownership was somewhat related to some variables investigated: stations owned or operated by leading groups provided richer content and information on their Web sites. Indeed, some top television groups, such as Hearst-Argyle, Post-Newsweek, and E. W.

Scripps, have partnered with Internet development companies for driving more visitors and advertisers to their sites. Since the passage of the Telecommunication Act of 1996, the top 25 TV groups have become more dominant in the television broadcast industry. When analyzing the local television stations' Web sites, ownership should be considered as important a variable as affiliation and market size.

Web site operation is another variable of concern. As the number of people accessing the Internet climbs, local television stations are still struggling to make a profit from their sites (Just & Levine, 2000; Schafer, 2000). Without sufficient expertise and resources, many local stations have maintained a cursory Web presence (Murrie, 2001). Internet development companies like Internet Broadcasting Systems (IBS) or WorldNow, provide sales support, content management, and technology solutions and have become popular with local television stations (Murrie, 2001). A survey by the Media Audit (2001) looked at 345 local television station Web sites in more than 80 U.S. markets and found that more than 150 affiliates examined had outsourced their Web operation and development to a third party. Indeed, these outside companies have produced some successful Web sites, such as WCCO's Channel 4000 in Mendota Heights, MN (Lou, 1998).

While an increasing number of local broadcasters are partnering with outsourcing firms, scholars have not yet conducted scientific research regarding the efforts that these companies have brought to the integration of Internet and television broadcasts. There seems to be significant differences between Web sites operated by outsoutced Internet development companies, in-house, and Internet subsidiaries. The distinction between in-house and outsourced Web sites might produce significant effects on content, structure, interactivity, presentation, and other mechanisms. Thus, type of Web site operation should be considered as one of the external factors in an analysis of local broadcasters' Web sites.

Research Questions and Hypotheses

The review of related literature guides this study to propose the following research questions:

1. What are the major types of content, content presentation mechanisms (e.g. photo, graphic, and multimedia), and interactivity features presented on the Web sites of U.S. local television stations' Web sites?

2. What are the relationships between the variables of external factors, including network affiliation, market size, ownership, and the type of Web site operation, and the content, content presentation mechanisms, and interactivity features of local television station Web sites?

Methodology

To examine how local television broadcasters are using Web technology, the Web sites of a representative random sample of U.S. commercial television stations that provide Web sites will be analyzed. By focusing on the "Says What" category of Lasswell's mass communication typology, content analysis has been adopted to describe a wide variety of mass media content including newspapers, magazines, books, advertising, and broadcast media (Riff, Lacy, & Fico, 1998). Content analysis is the "method of studying and analyzing communications in a systematic, objective, and quantitative manner to measure variables" (Kerlinger, 1973, p.525). Since the notion of the World Wide Web as a mass medium has been gaining momentum in recent years, content analysis has also been used in studies of Web site content (Bates & King, 1996; Bates et al., 1997; Gubman & Greer, 1997; Chan-Olmsted & Park, 2000). A content analysis technique was employed in this study to examine 160 local television Web sites.

Because of the variable structure of Web sites, a complete analysis of every element of over 160 entire television station Web sites would require a prohibitively large investment of time and resources. On the other hand, simply examining homepages does not provide a sufficient depth of understanding of the Web strategies of local television broadcasters. Some elements of Web sites content and devices, for instance, interactivity or e-commerce, are presented on the Web site in locations other than the homepage. For the purpose of the study, the unit of analysis is specified as the Web site, and Pines' (1999) definition of the Web site as the local commercial broadcast station's homepage, and the first two layers down from the homepage was adopted in this research.

This study developed a coding scheme by adapting several content analysis categories used in previous research (e.g. Chan-Olmsted & Park, 2000; Pines, 1999) to analyze local broadcast stations' Web sites. In addition, new categories related to the goals of this study were also developed. In order to assure the appropriateness of the categories presented in the coding protocol, a pretest was conducted before finalizing the coding sheet and category definitions.

Eleven general thematic categories of Web site content were identified in the content analysis: general station information, news-related content, non-news related local information, multimedia, interactivity, advertising, promotion, e-commerce, users service, hyperlink, and subscription.

(1) General station information. For the homepage, five items were counted. They were the station logo, station name/call letters/station slogan, station channel, station location, and network logo. For the entire Web site, coders checked whether the contact information and station/ownership information were available.

(2) News-related content. Coders analyzed the types of news-related information

presented and the manner of presentation. In this study, there were two kinds of news-related content: local news-related information and national/international news-related information. Local news-related information was defined as consisting of four categories: local news, local sports news, local weather, and traffic information. For national/international news-related information, national/international news, professional, national or international sports news, national/international weather, features stories were counted. For the homepage, an extra national/international news-related information category, stock quotes, were also examined.

(3) Non-news related local information. Coders examined whether information about local jobs, local guides/maps, local business directories, and community events calendars were provided, or whether the Web site only provided external links to related Web sites.

(4) Multimedia. This category checked whether news-related information were presented with image. Three types of multimedia features were counted: streaming video clips, use of live cameras, and Webcasting of full local newscasts.

(5) Interactivity. This study adapted some of Chan-Olmsted and Park's coding scheme to examine interactivity on broadcast sites. The coders checked whether staff or department e-mail addresses were listed, whether feedback forms were presented, whether discussion areas (e.g. chatrooms, discussion forums or bulletin boards) were presented, and whether online survey/opinion polling was posted on the site. Also, coders checked whether the traditional contact information (e.g., mailing addresses, telephone, and fax numbers) was provided.

(6) Advertising. The site was examined for the presence or absence of four major types of online advertising, banner ads, buttons, interstitials, and skyscrapers.

(7) Promotion. Coders examined whether on-air programs (network/local news programs and network/local programs) and local news/anchors teams were promoted on the Web sites. Additionally, coders checked whether the on-air program schedule was provided.

(8) Electronic commerce mechanism. Coders examined whether the site provided online shopping. The Web visitors could either buy merchandise directly from the site or from other sites to which the broadcast site is linked.

(9) User service. Types of user services were recorded. For archives, coders examined whether archives were presented, how they were presented, and if registration or charges were required for accessing the archives. The site also was examined for the presence or absence of key word search features, e-mail news, and further customization of homepage or news.

(10) Hyperlinks. The concept of a "link" was split into two dimensions—internal links and external links. For internal links issues, coders analyzed whether links were provided to affiliated network news and programs' sites and media partners' sites. For external links issues, coders noted the presence or absence of third-party links which could be advertiser or sponsor's sites or other news media Web sites.

(11) Subscription. Coders checked if any form of registration was solicited.

Results

During the time of data collection, October 27, 2002 through November 17, 2002, a total of 160 local television station Web sites in the United States was analyzed. Of those, 80.7% were affiliated with the three major networks (ABC, CBS, and NBC) 17.6% were affiliated with the three younger networks (FOX, WB, and UPN), and 1.9% were operated by independent stations. As for ranking the market size (Designed Market Area, a DMA), 28.1% were in major markets (top 26 DMA markets), 27.5%

were in large markets (DMA 27-73), 26.3% were in medium markets (DMA 74-126), 10.6% were in small markets (DMA 127-168), and 7.5% were in minor markets (DMA 169-210). Regarding the type of Web operation, 45 % of coded Web sites were operated and maintained in-house, 25% by either IBS or WorldNow, 19.4% by other minor Web operator companies, and 10.6% by Internet subsidiaries of station ownership groups (e.g. Belo Interactive, Cox Interactive Media). In terms of ownership, 52.5% were owned by the top 25 TV groups, 33.8% were owned by non-top 25 TV groups, and 13.8% were single-owned stations (see Table 1).

The first research question asked, "what are the major types of content, content presentation mechanisms, and interactivity features presented on the Web sites of U.S. local television stations' Web sites?" While earlier research (Bates et al., 1997; Niekamp, 1996; Pines, 1999) had found that in the early period of broadcast station Web site operation, news was not the most common content element, later research (e.g. Kiernan & Levy, 1999; Chan-Olmsted & Park, 2000) noted that local stations had increased local news offerings. Chan-Olmsted and Park pointed out that local stations adopted a strategy of focusing on news-oriented content because "repurposing" of previously-aired news content could minimize the costs of maintaining Web sites. Information compiled in this study found that local news and local weather have become the most common types of information provided in local television station Web sites. However, news content was not analyzed in an effort to determine if it was current or repurposed.

Pines (1999) noted that local stations were more likely to offer national or international news than local news on their Web sites, but the present study determined that only slightly more than half of the sampled Web sites provided national or international news. For non-news-related local information, the most common type of content (found in 70.6% of the sites examined) consisted of local job/station employment notices. This incidence is substantially higher than that found (48.7%) in 2000 by Chan-Olmsted and Park. Local television stations also appear to be providing more information about community events, with such information found on 69.4% of the Web sites in this study, compared with less than 25% in Chan-Olmsted and Park's work. However, promotion is still the dominant form of content, a finding consistent with that of other content analyses of local station television Web sites (Chan-Olmsted & Park, 2000; Pines, 1999; Niekamp, 1996). In this study, promotional content most often included information about local anchors (88.1% of the sites), local news programs (65.6%), and affiliated network programs (51.9%).

Previous research (Bates, et al., 1997; Pines, 1999; Chan-Olmsted & Park, 2000) noted that the use of multimedia and interactivity features was very limited among the majority of traditional television broadcasters' Web sites. As local television broadcasters have now had a few years of additional experience with evolving Internet technologies, have they become more sophisticated in their use of the new medium, making greater use of interactive features and providing more multimedia elements? Results indicate the presence of such features increased more than 300% from the levels found in Chan-Olmsted and Park's study. Nonetheless, multimedia content was still absent from the great majority of local television stations Web sites. Only 38.1% of the Web sites examined provided video streaming, 43.6% had a live camera, and 13.8% webcasted entire programs.

The Internet, more than TV and other mass media, has the advantage of interactive capability. Even though a high percentage of local television Web sites provided such feedback mechanisms as e-mail addresses, mailing addresses, telephone and fax numbers, few television stations have operated Web sites that are truly interactive. It is important for local television stations to understand that "interactivity" implies more than providing opportunities for feedback. However, it would not be appropriate to conclude that local television stations have totally ignored the Internet's interactive capability. The number local television stations attempting to facilitate station-audience interaction by providing interactive elements is increasing. Chan-Olmsted and Park's study found that less than 10% of local station Web sites contained discussion forums/bulletin boards, chatrooms, or online surveys/online polling, and the most common interactive element on station Web sites was a feedback form (35% of sites examined). This study revealed that the proportion of Web sites with discussion forums/bulletin boards and online surveys had increased dramatically during the past two years, but the percentage of Web sites offering synchronous chatrooms still remains less than 10%.

The second research question asked: "What are the relationships between the variables of external factors (network affiliation, market size, ownership, and type of Web site operation) and the content, content presentation mechanisms, and interactivity features of local television station Web sites?" To examine whether statistical relationships exist between the external factors and the Web content, content presentation, and interactivity features, two-way contingency table analysis using crosstabs was applied. Chi-square is a statistical test used to analyze the nominal level of measurement scores where frequencies of occurrence of the various categories are obtained. Cramer's V, one of the commonly used measures of the strength of association between the variables in a chi-square analysis, was used in this study. Cramer's V is always between 0 and 1 where 0 means that the two variables are perfectly unrelated and 1 means that they are perfectly related. A significance level of

$p < .05$ was used for all statistical tests.

The relationship of network affiliation to almost all news-related information and promotion variables on the homepage and the overall Web site was statistically significant. As for the non-news-related local information throughout the Web site, only the use of community/local events calendars was found to be statistically related to affiliation.

On both homepages and within the overall Web site, affiliates of the three major television networks were much more aggressive than other stations in providing news-related information. Especially strong relationships were found between affiliation and the presence of the local news on the homepage (V = .777) and overall Web site (V = .569). On homepages, ABC affiliates were the most likely to provide local news (100%) and local weather (93%), while NBC affiliates were most likely to present local sports news (32%), national/international news (61%), and feature stories (59%). Only stations affiliated with the three major networks provided stock quotes on the homepage, and CBS affiliates were the most likely (36%). Regarding overall Web site content, ABC affiliates were again most likely to present local news (100%), local sports news (79%), national/international news (70%), national/international sports news (63%), and feature stories (81%). CBS affiliates were more likely to provide local weather (95%). ABC affiliates also were more likely to provide community events calendars (86%), while only 53% of FOX affiliates provided community events calendars.

With respect to promotion, affiliates of the three newer networks were much more active. As affiliates of the three major network were more active in the promotion of local news (ABC: 56%, CBS: 71%, NBC: 80%) and local anchors (ABC: 70%, CBS: 76%, NBC: 66%) on the homepage, stations linked to the three younger networks promoted affiliated network programs (FOX: 93%, WB: 100%, UPN: 83%) and presented program schedules (FOX: 40%, WB: 86%, UPN: 33%). The relationship between affiliation and the promotion of local anchors throughout the Web site was strong (V = .675). FOX (80%) and WB (100%) stations were consistently the most aggressive in promoting affiliated network programs, while three major network affiliates focused on promoting local news (ABC: 74%, NBC: 75%) and local news anchors (ABC: 95%, CBS: 95%, NBC: 100%).

A statistically significant relationship was found between network affiliation and several content presentation mechanism variables, such as local news and local weather on the homepage, local weather on the overall Web site, video streaming, and live camera. The three major television network affiliates were more likely to present information with images and to provide multimedia content on their Web sites. ABC affiliates were most active in presenting local news (61%) and local weather (81%) with images on the homepage, while CBS affiliates (95%) were more likely to present local weather with images throughout the Web site. The relationship between affiliation and the presence of local weather on the overall Web site was strong (V = .518). Concerning the adoption of multimedia technologies, CBS (45%) and NBC (48%) affiliates were more aggressive in video streaming, and ABC affiliates (56%) were more aggressive in the use of live cameras.

Unlike the strong relationship between homepage and overall Web site content and content presentation mechanisms, affiliation was generally not related to the use of interactivity features. Only e-mail addresses χ^2 (6, N = 160) = 23.44, p = .001, and use of online surveys χ^2 (6, N = 160) = 20.66, p = .002, were statistically significant in relationship to affiliation. WB affiliates (43%) were least active in providing staff, anchors, or representatives' e-mail addresses, while all sampled UPN affiliates, 98%

of CBS and NBC affiliates, and 95% of ABC affiliates provided this information on their Web sites. In terms of online surveys, there were differences among different network affiliates. ABC affiliates (70%) used online survey forms most often, followed by WB (57%), NBC (52%), CBS (41%), FOX (27%), and UPN (0%).

In this study, the markets were stratified as major markets (DMA 1-26), large markets (DMA 27-73), medium markets (DMA 74-126), small markets (DMA 127-168), and minor markets (DMA 169-210). Market size was found to be widely related to the homepage and overall Web site content. Stations in the major and large markets were more likely to provide news-related information on the homepage, including national/international news (major: 67%, large: 61%), feature stories (major: 53%, large: 59%), stock quotes (major: 40%, large: 34%) and program schedules (major: 38%, large: 25%), while stations in medium markets (91%) and small markets (88%) were more likely to present local weather on their homepage. Major market stations also were more active in providing television program schedules on the homepage (38%).

In overall Web site content, stations in major and large markets were still more ambitious than stations in medium, small, and minor markets. Major market stations were more likely to provide national/international sports news (51%) and national weather (47%), while stations in large markets were more likely to provide national/international news (64%) and features stories (80%). Major (58%) and large (75%) market stations were not as aggressive in providing community events calendars as was the medium market (81%). For promotion, stations in large markets (61%) were the most active in promoting network programs on their Web sites.

Market size plays a major role in the mechanisms of content presentation. Market size was found to be significantly related to the presentation of all local news-related information on the homepage, traffic information and national weather on the overall Web site, and the adoption of video streaming. Stations in major markets were more active in presenting traffic information (33%) and national/international weather (40%) with images on the overall Web site, as well as in adopting video streaming technology (58%). However, except for the minor markets, stations in major markets (62%) were the least active in presenting local weather with images on the homepage. By comparison, 83% of stations in medium markets and 77% of stations in large and small markets offered local weather with images. Surprisingly, stations in small markets were the most aggressive in presenting local news (59%) and local sports news (24%) with images on their homepages.

Market size was the least relevant variable with respect to the use of interactivity features; only the use of discussion forums/bulletin boards χ^2 (4, N = 160) = 12.79, $p = .012$ was statistically significant in relationship to market size. It seems that the larger the market in which a station was located, the more likely it was to provide discussion forums or bulletin boards on the Web site. Forty-seven percents of sampled major market Web sites provided discussion forums/bulletin boards, while only 18% of the small market and 8% of minor market Web sites provided such feature.

Ownership was significantly related to the presence of news-related information on the homepage and overall Web site, and non-news related local information. Television stations of top 25 TV groups were the most aggressive in providing national/international news (61.9%), feature stories (52.4%), and stock quotes (36.9%) on their homepage, but lagged behind Web sites of non-top 25 TV groups (94.4%) in providing local news on their homepage. Similarly, Web sites of top 25 TV group-owned television stations were ahead of the Web sites of non-top 25 TV group-owned stations and single-owned stations in providing national/international news (63.1%), national/international sports news (50%), and feature stories (73.8%) throughout the overall Web site. Web sites of non-top 25 TV group-owned stations were more active in providing local news (90.7%).

For non-news-related local information, Web sites of non-top 25 TV group-owned stations were the most aggressive in providing local business directories (22.2%) and community events calendars (85.2%). As for promotion, no statistically significant relationships were found on either homepages or the overall Web site.

Station ownership was statistically significantly related to the presence of traffic information and national weather throughout Web sites, video streaming, and use of live cameras. Top 25 TV group-owned stations (49%) were far ahead of both non-top 25 TV groups (32%) and individually-owned stations (14%) in adoption of video streaming on their Web sites. The top 25 group-owned stations were also most likely to present traffic information (25%), to present national weather with images throughout the Web site (38%), and to offer a live camera (51%).

Ownership was significant when related to only two interactivity feature variables: discussion forums/bulletin boards χ^2 (2, N = 160) = 17.87, p = .001 and online surveys χ^2 (2, N = 160) = 10.05, p = .007. Web sites of individually-owned stations lagged behind with none providing discussion forums/bulletin boards and only 18% providing online surveys. In contrast, 45% of Web sites operated by the top 25 TV group-owned stations presented discussion forums/bulletin boards, and 57% of non-top 25 TV group-owned stations presented online surveys on their Web sites.

The type of Web operation was found to be widely related to the types of content provided on either the homepage or the overall Web site. For the homepage content, Web operation was significantly related to the presence of local weather, national/international news, feature stories, promotion of local news programs and promotion of local anchors. As for content provided throughout the overall Web site, Web operation was significantly related to all national/international news-related information, local business information, and the promotion of affiliated network news programs.

IBS and WorldNow, the leading local television Web development companies, were most likely to provide local weather information (98%), national/international news (68%), and features stories (78%) on the station homepage. As for the overall Web content, Web sites operated by IBS/Worldnow and Internet subsidiaries were more progressive. Web sites operated by IBS/Worldnow were more active in providing national/international news (90%), national/international weather (55%), and feature stories (98%) on the local television station Web sites they operated. Web sites operated by Internet subsidiaries were more likely to provide national/international sports news (53%) on their homepages. Even though only 38% of the IBS/WorldNow-operated Web sites provided national/international sports news, 58% of them did provide links for visitors who want related information. With respect to non-news-related local information, Web sites operated by IBS/WorldNow (15%) and other Web development companies (16%) were more active in providing information about local business. As for promotion, Web sites affiliated with IBS/WorldNow were most aggressive in promoting local anchors (78%) and local news programs (83%) on their homepages, but less likely to promote network news programs on overall Web sites (2.5%).

Web operation was significantly related to only two content presentation mechanism variables: the presentation of local weather on the homepage χ^2 (3, N = 160) = 10.06, p = .018, and video streaming χ^2 (3, N = 160) = 27.38, p = .001. Web sites operated by IBS/WorldNow (85%) and Internet subsidiaries (82%) were more likely to present local weather information with images (radar, graphic, satellite, or live camera) on the homepage. In terms of providing video streaming, Web sites operated by IBS/WorldNow (63%) and Internet subsidiaries (71%) were ahead of Web sites operated by other Web development companies (26%) and in-house Web sites (22%).

The type of Web operation was the most important external factor related to the variable of interactivity. All interactivity variables except the provision of contact information (e-mail and standard mail addresses and phone/fax numbers), was statistically significantly related to the type of Web operation. Web sites operated by leading Web development companies, IBS and WorldNow, were more likely to provide interactivity features on their Web sites. Twenty percent of the Web sites affiliated with IBS or WorldNow provided chatrooms, while none of those operated by other Web development companies or by Internet subsidiaries provided such features. As for the provision of discussion forums/bulletin boards, Web sites operated by IBS/WorldNow (58%) and Internet subsidiaries (47%) were more likely to provide discussion forums/bulletin boards than in-house Web sites (22%) and Web sites operated by other Web development companies (16%). IBS/WorldNow were also more aggressive in providing online surveys (68%). Interestingly, Web sites affiliated with IBS/Worldnow were least active (18%) in providing feedback forms, while Web sites operated by Internet subsidiaries were the most aggressive (65%).

Conclusions and Limitations

Results of this study indicated that local news-related information, especially local news and local weather have become the most common types of information provided on local television station Web sites. Local television stations seemed to realize that local news-related information is the strength of their Web sites. Besides utilizing the

Web to deliver information to their site visitors, local television stations also were found to be using the Web to deliver promotional content about programming and station anchors. Even though promotion still remains the primary function of local television station Web sites, it has become clear with this study that the local television industry is beginning to operate their Web sites more like local information providers. Meanwhile, this study noted that the use of multimedia and interactivity features increased dramatically from the levels found in previous research, but the were still absent from the majority of local television station Web sites.

Other findings concerning the influence of external factors (network affiliation, market size, ownership, and the type of operation) on content, content presentation mechanisms, and interactivity features of local television station Web sites confirm earlier research that found that Web sites affiliated with the three major networks, those operated by major television station groups, and those operated in larger markets were more aggressive in taking advantage of developing Internet technology. A new factor which had never been addressed in previous in previous research, the type of Web operation, was found to be significant. Web sites operated by the leading local television Web development companies, IBS and WorldNow, were found to be more advanced than far in-house Web sites with respect to almost every variable examined. The two Web development companies are expected to play a key role in the convergence of Internet and local television broadcasting in the future and may be joined by additional competitors.

This study expands the research regarding U.S. local broadcasters' Web use. By examining U.S. local commercial television broadcasters' Web sites, especially the content and the use of multimedia features and interactive mechanisms, this study noticed some new phenomena and provided numerous implications. As traditional media, especially television stations and newspapers, compete with each other to increase their revenue and dominate their markets (Holliday, 2001), the Internet is going to be a key weapon for enabling traditional media to win a larger local base. If local television stations' Web sites intend to survive in the cyberspace competition, their appeals much be enhanced. This goal can be achieved in two ways: first, by improving the quality of Web content, especially local news-related information; and second, by partnering with experienced Web development companies, such as IBS and WorldNow, especially when economic conditions preclude adequate investment in local Web operation.

Recently, increasing numbers of newspaper Web sites have begun to generate revenue with online content sales, especially the sale of archived articles. Even though the findings of this study revealed that local news-related information has become a popular elements of local television Web sites, none of the examined television station Web sites in this study has begun to sell digital content. Unlike the national television networks, the local broadcaster, whose resources are very limited, has difficulty achieving success in e-commerce. Providing in-depth and exclusive content on the Web site will be the first step for local television broadcasters.

Since the middle of 1990s, local television stations are increasingly turning to Web development partners to share revenue in return for Web content management, technology service, and sales support (Murrie, 2001). Analysis revealed that Web sites operated by IBS or WorldNow were more likely to provide news-related information, interactivity features, and adopt video streaming technology. By partnering with these two leading Internet development companies, local television stations are able to provide revenue-generating Web content without burdensome overhead costs. For local television stations with limited budgets, Internet development companies like

IBS or WorldNow might be the answer.

For TV groups, creating Internet subsidiaries as the backbone of locally owned television station Web sites could be another choice. Like IBS and WorldNow, Internet subsidiaries perform similar functions in exchanging content through central database system. In order to reduce the expense of Web operation and maintenance and to control the quality of locally owned stations' Web sites, Internet subsidiaries create competitive advantages.

The results of this study indicated that the presence of multimedia and interactivity features on local television stations' Web sites has increased dramatically over the past few years, but they were still absent from the great majority of local television stations Web sites. As the number of U.S. online households connecting to the Internet via a broadband connection increase gradually, advanced multimedia and interactivity mechanisms will become must-have features on the local broadcasters' Web sites in the near future. Stations which fail to seize upon the interactive nature of the Web to enhance their relationship with audiences or simply transfer text from the content they already produced for local newscast will be eliminated from the competition in cyberspace.

The conclusions of this study should be considered in light of its limitations. First the study was restricted to 15 percent of the total number of Web sites (N= 160) operated by commercial television stations in the United States. Further, this study only examined whether certain content, multimedia technologies, and interactivity features were presented, but did not count the quantity of each presented content element or did it analyze the quality of the content, specifically, whether news content was created specifically for Web sites or just transferred from the local newscast.

Table 1

Frequency and Percent of Sampled Web Sites

	Frequency	Percent
Affiliation		
ABC	43	26.9
CBS	42	26.3
NBC	44	27.5
FOX	15	9.4
WB	7	4.4
UPN	6	3.8
Independent Stations	3	1.9
Market Size		
Major (DMA 1-26)	45	28.1
Large (DMA 27-73)	44	27.5
Medium (DMA 74-126)	42	26.3
Small (DMA 127-168)	17	10.6
Minor (DMA 169-210)	12	7.5
Web Operation		
Independent/In-house	72	45.0
IBS/WorldNow	40	25.0
Minor Web Development Company	31	19.4
Internet Subsidiaries	17	10.6
Ownership		
Top25 TV Groups	84	52.5
Non-Top 25 TV Groups	54	33.8
Single-Owned Station	22	13.8

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Facing the challenges of convergence

Media professionals' concerns of working across media platforms

Abstract

This paper examined some top concerns in the media industry brought up by media convergence including the need to update news staff, production quality, compensation for multiplatform productions and the legitimacy of media convergence. An online national survey was conducted both among merged and non-merged daily newspapers and commercial TV stations to find out to what extent such concerns were shared by editors/news directors and news professionals and what their answers were to such concerns.

Background

The news industry in America has been undergoing a fundamental paradigm shift since the end of the last century. More and more media companies, such as *The Washington Post* and Media General, have merged local newspapers, televisions stations, online news operations, and sometimes radio stations to disseminate news via multiple media platforms. Some media companies, such as the *St. Petersburg Times* in St. Petersburg, Florida, *The Hawk Eye* in Burlington, Iowa, and KWCH TV in Wichita, Kansas, have cooperated with other media companies to report from multiple platforms without going through business mergers. More media companies have done multiplatform reporting on their primary platform, such a newspaper or TV, and on their online news site. Such a trend of media convergence has brought up many concerns, such as the need to update news staff, production quality, compensation for multiplatform productions, and last but not least, who is benefiting from convergence. This study examined how news practitioners looked at these issues.

After surveying 200 newspaper publishers worldwide, the World Association of Newspapers found: "Despite a somewhat gloomy outlook for wholesale convergence in media companies worldwide in the near term, convergence is already being implemented with varying degrees of enthusiasm and speed among the world's media companies"

(Français, 2002). The Innovation International Media Consulting Group estimates that at least 100 of the world's multiple media companies are planning and implementing integration strategies (Ibid). South & Nicholson (2002) drew a sketch of a converged media company:

> Daily journalists need to embrace the 24-hour news cycle, with continuous deadlines. And the story needs to be reported and produced for a multi-platform audience. That may mean delivering content first to the Web and cell phones, a streaming video broadcast later in the day, a TV talk-back interview still later, and a "second day" interpretive story for the next morning's newspaper.

Dominic Gates (2002) pointed out, "Convergence with broadcast and online media is the shape of things to come for newspapers."

The trend remains controversial. Critics complain that cross-ownership of both a television station and a newspaper in the same market is a threat to democracy because it limits the number of voices[1] (Blethen, 2002; Anderson, 2002; Foster, 2002; O'Conner, 2002; Tompkins and Stencel, 2002; Tompkins, 2001). Delegates of the Communication Workers of America, a 60,000-member guild, passed a resolution in June of 2002 at the group's annual convention in Las Vegas, pledging to increase public awareness about the risks of ongoing media convergence. The delegates complained that shrinking media markets are a threat to editorial diversity and job security (Hartman, 2002). In 1975, the Federal Communications Commission (FCC) ruled that no new broadcast licenses would be granted to companies that own a major daily newspaper and a local television station in the same city. Fairness & Accuracy In Reporting (FAIR) has called on the FCC to roll back limits on media consolidation.[2] The Newspaper Association of America (NAA), on the other hand, has asked the FCC to appeal the rule (Tompkins & Colon, 2000). If the NAA gets its way, converged organizations will become more commonplace.

Much of the controversy resides in the legitimacy issue. In other words, it is about who is benefiting from convergence, especially whether the general public is benefiting from convergence, though such discussions have been rare. Barrie Zwicker, media critic for Toronto-based Vision TV, says mergers and buyouts will make media owners wealthier and may create benefits for advertisers, such as one-stop shopping opportunities. But for the average consumer, he argues, increased concentration of ownership means access to a narrower range of facts and opinions (Summerfield, 2000). When asked "What's the value of convergence if the public doesn't see, accept, and embrace it?" Carr (2002a), news director of the News Center in Tampa, FL, replied, "At least half of the benefits of convergence are not necessarily directly visible to our consumers." Carr continued,

> For instance, one of the greatest benefits of convergence, the daily sharing of tips and information, is not a process of which the audience is normally aware. This process alone has dramatically improved the newsgathering ability of each platform — and has thereby improved our service to our consumers. The value is intrinsic and very real and does not depend upon public perception (Ibid.).

Carr acknowledged that each platform frequently publishes "refers" or pushes to its partners, so that various platforms benefit from such convergence-based cross-promotion. He also acknowledges that some readers, viewers and users have found that such cross-promotion that largely benefits the business is annoying and that it needs to be revisited (Ibid.). Carr believes that the idea that each partner must always benefit equally from convergence will derail convergence. "It's the viewers, users, and readers who should benefit the most," Carr said (Ibid.). Al Tompkins from the Poynter Institute agrees with Forrest Carr. He said that customers probably don't benefit from television-newspaper cross-promotion (Tompkins, 2001). Tompkins said, "But when newspapers are willing to generate significant local content for television stations, and television stations expand their on-air reporting to newspapers, and both contribute highly interactive and locally relevant material to websites, the public can benefit" (Ibid.).

So far, most discussions are about how business can benefit from convergence. Concerns about cross-promotion hint at a prevalent conception in the industry that convergence primarily benefits TV companies rather than newspaper partners. Charles Kravetz, the vice president for news and station manager of New England Cable News (NECN), disagrees (Tompkins & Kravetz (2002). When answering the question "Doesn't TV benefit more journalistically than your newspaper partners do?" Kravetz said:

> I think implied in the question is that newspaper journalists are better journalists or are more thorough or in depth. We have had a variety of journalists including

> some who had been reporters at the Globe who we hired and they discovered how incredibly difficult the challenge of television is (Ibid.).

He said that, since many people don't read newspapers, television can visualize and enhance newspaper stories. "At the end of the day everybody is benefiting from these relationships and if they were not they would not be continuing," Kravetz said (Ibid.).

Besides the discussions and controversies about benefits and cross-promotions, the mergers have raised questions about whether they are good for the craft of journalism itself. News practitioners vastly disagree on whether convergence will harm the quality of news production. Robert Nelson (2002) says that convergence "is great for television news, great for newspaper marketing and awful for both the marketplace of ideas and the marketability of talented geeks, who, from my experience, are the bedrock of quality print journalism in America."

Critics complain that by requiring journalists to be jacks of both trades, print and broadcast, the journalists will be masters of none. Robert J. Haiman, president emeritus of the Poynter Institute and ex-editor of the *St. Petersburg Times*, compared the media convergence trend to an Amphicar, a cross between a boat and a car (Haiman, 2001). The Amphicar, hawked in Florida during the 1950s, flopped. "It flopped because people quickly discovered that while it really was an ingenious combination of a car and a boat, it was a lousy car (because it also had to be a boat), and it was a lousy boat (because it also had to be a car)," Haiman said (Ibid.)[3]. Haiman argued that the converged media world is one from which good journalism, and good journalists, are going to be in great need of defense. He said: "I think that convergence may end up being good, maybe even very good, for media companies. I fear, however, that it is going to be bad, and maybe even very bad, for journalism" (Ibid.). Haiman (Ibid.) continued to explain:

> I think it is going to be bad for journalism because, even if it goes as well as it possibly can, I believe that it is going to distract journalists, journalism teachers, and journalism students away from that single most important imperative of the craft — to create an informed society capable of intelligently governing itself.
>
> And if it does not go well, I fear it is going to subject journalists to time, resource, craft, and ethical pressures, all of which will be bad for journalists, bad for journalism, and bad for the country.

In short, "Convergence is the enemy of quality journalism," according to Robert Haiman (Anderson, 2002). Since there exists a strong tendency towards oligopoly/duopoly/ monopoly and certainty in the market as well, which harm competition, "the role of regulators will become more critical and substantial in terms of quality, if not quantity, in the converging market," Moon (2001) said.

Not far from the Poynter Institute, the News Center discards Haiman's concerns as irrelevant. Dan Bradley, who heads the News Center said, "The professional journalists in Tampa at all levels of the operation, have, by and large, worked very hard to come to grips with these challenges." In spring 2002, the Tampa Tribune and WFLA-TV, both under the News Center, co-sponsored a town hall meeting about the quality and responsiveness of local news. Public response and citizen involvement play a key role in the quality of the News Center's converged projects, according to WFLA-TV's News Director Forrest Carr (2002b). Carr demonstrated several awards the News Center won in 2002 to dispel Haiman's quality concern. The awards include WFLA-TV's four first-place awards in 2002's Florida Associated Press broadcasters' competition and many Edward R. Murrow awards, TBO.com's national SPJ award, and *The Tampa Tribune*'s two awards in the Mid-Florida SPJ contest. "Convergence harms quality? I think not. Given that convergence is a factor in everything we do at the News Center, I think this shows the opposite is true," Carr (2002d) said.

Willingly or unwillingly, many news practitioners' functions are gradually changing or are expected to change as media convergence rolls on. As a reporter in a converged media environment, knowing how to write is probably no longer enough. S/he could be expected to write the same story for different media in a timely manner. Ideally, s/he can readily talk in front of a video camera. As a photographer, knowing how to tell a story both in video and in still images is more and more in demand. A designer should know how to prepare still graphics for print, moving graphics for television and dynamic graphics for the Web. At the online version of *The Chicago Tribune*, for instance, staffers are supposed to cover stories, take pictures, operate video cameras, and create digital pages. The editors, too, need a wider variety of skills than the traditional paper editors (Newshour transcript, 1997). Along with infrastructure changes and the attempt to create synergy among the various media outlets, a new breed of journalists — digital or multimedia journalists—is expected (Abraham, 2001).

As media jobs become more demanding, some news practitioners are beginning to team up to complete projects (Bulla, 2002; Abraham, 2001). At the same time, fear, confusion and frustration from news practitioners are creeping into newsrooms. Carr (2002c) wrote: "Convergence frightens many people who wonder whether their current skill sets have prepared them for — or will even be needed in — that great undiscovered country, the future. This is probably the primary reason why I still find such great hostility to convergence among certain journalists." Killebrew (2001), a mass communications professor from the University of South Florida, suggested that "journalists must be prepared to either cross-train themselves or seek training from other sources while management must be prepared to give them the opportunities and time to do so."

Then, what kind of training do journalists need most? So far, most writings on this topic (i.e., Janeway, 2002; South, 2002; South & Nicholson, 2002; Thelen, 2002; Erb, 2001; Irby, 2000a; Irby, 200b; Outing, 1999) have focused on training journalism students, and few talked about training mid-career professionals. Gil Thelen (2002), executive editor and senior vice president of *The Tampa Tribune*, for example, gave suggestions to journalism educators based on his two years of experience in the News Center about what future journalists they expected. "The fully formed, all-purpose, multiplatform, gadget-laden journalism grad is NOT what we're looking to hire.… Journalism schools must continue to produce graduates who are competent in one craft area: reporting, design, producing, directing, editing." However, Thelen encouraged J-schools to train writers to write for print, online, and broadcast and train print photographers to learn how to shoot and produce TV packages. Thelen said that cultural resistance is the biggest hurdle for converging newsrooms, and that employees or current journalism students need to learn to cooperate and collaborate across newsrooms (Ibid.).

On-the-job training has occurred in many converged media companies. In the wake of the development of the News Center, more than one hundred print journalists were put through a one-day "performance" training seminar at the University of South Florida (Killebrew, 2001). Both *Orlando Sentinel* (Fla.) and Sarasota (Fla.) *Herald-*

Tribune photographers were trained to provide video for their respective television partners, and both managements have arranged on-the-job training (Sandeen, 2000). The management of the *Sun-Sentinel* in Fort Lauderdale (Fla.), spent a significant amount of time training staff in groups and individually and also brought Mike Wendland in from Poynter for a daylong seminar on the art of radio journalism (Tompkins & Blackwell, 2002). As Tompkins (2001) said, "Successful convergence efforts include training."

Some reporters are concerned that editors in a converged environment will expect reporters to process more stories and more information or add more work onto the shoulders of the reporters who are already overloaded in one platform without appropriately compensating them financially (Anderson, 2002; Bulla, 2002). That's one of the reasons convergence encounters resistance in some companies. Addressing Anderson's concern, Carr (2002d) asked: "Why did you get into journalism? Did you join this profession because you saw it as a gold mine?" Carr (Ibid.) believes that good journalists get into the business because they have a passion for making a difference, affecting and motivating many lives, and getting involved in the process of setting public policy and holding the powerful accountable. "Convergence is for journalists who are interested in strengthening their journalism and public service by providing the news where and how citizens want it," Carr (Ibid.) said. On the contrary, Earnest L. Perry Jr., an assistant professor of journalism at Texas Christian University, who spent several years as a working newspaper journalist, is not so optimistic about the noble role Carr described. Perry said: "We are losing good people to PR/advertising and law school. Even the business world is taking our grads because of their writing skills.... Newspapers can't expect us to continue to sell our students on the glory of working in newspapers when they can make more elsewhere and have better hours and benefits" (Irby, 2000).

In order to better understand news practitioners' needs, fears and concerns during the transition to convergence and provide them with solid guidelines in dealing with the news issues from convergence, a national survey was conducted among news editors/news directors and non-managerial news professionals from daily newspapers and commercial television stations. The goal of the study was to provide evidence that would help both editors and news professionals make informed decisions about how to respond to media convergence in their daily work and to lay an empirical foundation for further discussions and conversations about media convergence.

The general research question was: What are the top concerns practitioners have for media convergence? We specifically examined their perceptions of knowledge updating, quality of news production, financial compensation for converged productions, legitimacy of convergence, and news practitioners' current experience profiles.

Methodology

News practitioners included editors and news professionals. Editors were defined as daily newspaper editors in charge of newsroom operations or online news operations and news directors in charge of newsroom operations in a commercial TV station with news content, both in the United States. News professionals referred to non-management news staff, such as reporters, anchors, photographers, designers, producers, Web staff, etc., working in American media companies.

To obtain opinions about media convergence, we could have targeted our survey only at those editors and news professionals in a converged media environment. The opinions obtained from those editors and news professionals, however, could be biased. We aimed to balance this perspective, so we included those media companies that had not gone through convergence.

We conducted a national survey among editors and news professionals with two different versions of online survey questionnaires posted on a school Web site. Respondents were asked to fill out the questionnaire online and submit answers online as well. There were 16 questions in each of these two questionnaires. Almost all questions were close-ended. About half of the questions used Likert Scale from "Strongly Agree" to "Strongly Disagree." The questions with corresponding serial numbers in the two questionnaires were identical in nature except for some wording difference so that comparisons could be made when analyzing data. A text field was created for respondents to provide feedback to the survey freely. The textual answers in the text field will be reported along with the statistics to illustrate and explain the quantitative findings. Both questionnaires went through pilot tests. The unit of analysis was each participant.

In order to conduct a systematic random sampling of editors and news professionals, we needed a list of newspaper editors and TV news directors in the United States and a list of newspaper and TV news staffers. We found that such lists did not exist. Therefore, we decided to construct our own.

After further research, we decided that www.newslink.org's daily newspaper list at http://newslink.org/daynews.html was the most comprehensive and workable list for sampling daily newspapers. In total, 1190 U.S. daily newspapers with a valid URL were listed alphabetically by state. We sampled one out of every four dailies. Then, we visited each of those Web sites to find the email address of the managing editor, chief editor, online editor or equivalent in each of those dailies and sent out a survey invitation email to him/her. If an individual email address was not available, we replaced it with a generic email address such as news@nytimes.com listed on the Web site and specified that the email be for the editor.

To sample TV news directors, we also used www.newslink.org's TV stations list at http://newslink.org/stattele.html. In total, there were 1093 companies ordered alphabetically by state. From the list, we removed PBS network companies, which mostly did not provide staff information, companies that did not generate news content such as WB network companies and UPN network companies, religious TV stations, and foreign language stations. In total, we extracted 674 TV stations with a valid URL. Since this population is smaller than that of the newspapers, we sampled every other station. Then, we visited each of those Web sites to find the email address of the news director or equivalent in each of those TV stations and sent out a survey invitation email to him/her. If an individual email address was not available, we replaced it with a generic email address such as news@wptv.com and specified that the email be for the news director.

In total, we successfully sent out invitation emails to 523 newspaper editors and TV news directors as our sample.

We also sampled one news professional out of each of the sampled U.S. dailies and TV stations for the survey. Since there was always more than one professional in a company, we simply randomly clicked on one name and picked him/her and made sure that s/he was on the news staff. Then, we sent him/her a survey invitation email. If an individual email address was not available, we replaced it with a generic email address and specified whom the email was for. S/he was asked to fill out a questionnaire that was worded in a slightly different manner. In total, we successfully sent out invitation emails to 398 news professionals.

In total, we sampled 921 news practitioners.

We understood that nonresponse had been a serious problem with online surveys in recent years. In order to counter possible low response rates in our survey, we created two samples for editors and news professionals containing roughly 500 people for each group, which were much larger than the sample sizes for populations recommended by Mildred Patten (2000) in her book *Understanding Research Methods: An Overview of the Essentials*, so that, if low response rates occurred, we could base our confidence limits on the actual number of responses themselves. We also sent out one reminder email to the samples, which drastically boosted the response rates, especially for news professionals.

Findings

After two weeks of online data collection in November 2002, we received 160 responses from editors (a 31% response rate) and 142 responses from news professionals (a 35% response rate).[4] The overall response rate was 33%. As Singletary (1994) notes, returns of 30% to 40% are common in mail surveys (p. 148). The response rates of this online survey seem typical. However, the response rates were still comparatively low. A response bias was potentially present. Many respondents (41%) gave textual answers to explain and illustrate their answers to the close-ended questions.

1. What is the status quo of media convergence in the industry?

By the end of 2002, 19% of the newspapers and commercial television stations with news content in the United States had gone through media mergers. Being merged or not had to do with the size of a company. Larger companies tended to have been merged while smaller ones had not (Pearson $\chi^2 = 7.77$, df=2, $p<0.05$). Roughly half of the news professionals surveyed (48%) reported that they produced news content for multiple media platforms on a routine basis; that was true both in merged media (50%) and non-merged media (48%). In other words, media merger was not the precondition for practicing multiplatform reporting. The pressure for such practice was also felt in many non-merged media companies.

A typical editor or news director was a man (71%) between 36-45 years old (42%) with a bachelor's degree (76%) who had worked for at least two media (57%) for more than 20 years (53%). A typical news professional was either a man (52%) or a woman (48%) between 26-35 years old (43%) with a bachelor's degree (84%) who had worked for at least two media (60%) less than ten years (62%).

No significant relationship was found between the number of years editors worked for media and the number of media they had worked for. In other words, editors who had worked for many years in the media may not have worked for more media. The reverse was also true. However, we did find that, for news professionals, the more years they had worked for media, the more media they had worked for (Pearson $r=.25$, $p<0.01$). This finding indicates that many news professionals, who were overall younger than editors had tried more media in their short media career. For those companies whose news professionals often reported across platforms, most news professionals (70%) had worked for more than 2 media.

2. What skills do news professionals need to learn most at their current positions?

Both editors and news professionals were given this unstructured question with slightly different wordings. We read through all the answers, and categorized them into the following nine facets in the following random order:

1. **Multimedia production:** Producing and editing news stories on video, for the Web and for print; re-purposing the same story for different media.

2. **New technology:** Knowledge of software for producing video, Web sites, graphics, newspapers, and magazines; knowledge of how to operate a computer and use the Internet.

3. **Good writing:** Knowing how to write to make people remember and/or take action, write about the beats with an expert's view. Good editing is also expected.

4. **Critical thinking:** Having good news judgment, understanding what is legal and ethical, knowing how to report with insight, knowing how to crunch statistics.

5. **Computer-assisted reporting:** Expert's knowledge of conducting online information search, database knowledge.

6. **On-camera exposure:** How to report like a TV news anchor before a camera for a newspaper reporter.

7. **Visual production:** A newspaper writer must know how to take photos or a TV reporter must know how to shoot video.
8. **Second language:** Knowing how to fluently speak and read a foreign language.
9. **Time management:** Organizing time well to work for multiple media platforms; the ability and willingness to work as a team to produce multimedia news stories.

Then we ranked these facets according to the percentage scores each facet got separately from the editors and the news professionals:

Figure 1: What new skills news professionals need to learn most

	Editors' list	News professionals' list
1	Good writing	Good writing
2	Multimedia production	Multimedia production
3	Critical thinking	New technology
4	New technology	Computer-assisted reporting
5	Computer-assisted reporting	Visual production
6	Visual production	Critical thinking
7	Time management	Time management
8	Second language	Second language
9	On-camera exposure	On-camera exposure

This ranking shows astonishing agreement between editors and news professionals except for critical thinking. No matter how technology changes and whether media are converged, editors and news professionals believed that learning how to write good stories is still the top priority and writing is the very basic skill all news professionals should learn. One editor pushed the importance of good writing to the extreme: "I've worked in markets 170 to 20, and having training in multiple media will not help you get a job, but being a good writer will" (#462).

This ranking shows that there was a strong need in the media industry for training news professionals who can conduct multiplatform reporting. Most editors and news professionals did believe that learning multimedia production, new technology, and computer-assisted reporting are also among the top priorities. "I would strongly urge students to prepare themselves to the best of their ability to be able to report/edit the news in a variety of platforms and to learn how to truly engage readers/listeners/viewers in what they are writing about" said Editor #243.

Editors and news professionals both believed that it is not very important for a newspaper reporter to learn how to talk like an anchor in front of a video camera. This skill was even regarded as being less important than knowing how to speak a second language. Some editors and news professionals also mentioned learning how to manage time for producing multimedia news stories. Editor #280 hoped that journalists in a converged environment would learn to avoid "extra" work by working "smarter" and with greater awareness of the requirements of the different publishing media.

This finding shows that editors valued critical thinking ability more than news professionals did. Editors wanted news professionals to be good thinkers first and the latter was more interested in how to express their thinking in different media.

3. If news professionals have to re-purpose their work for multiple media platforms, will the quality of their work suffer?

Opinions split. Thirty eight percent of the editors and professionals agreed or strongly agreed that the quality would deteriorate, 40% disagreed or strongly disagreed and the other 22% were not sure. Editors and professionals showed no significant difference on this attitude T-test. Such a concern was not prevalent in the news industry.

In response to such concerns, the news director from a converged media company wrote: "When reporters do cross platforms we give them the time to finish the project for all three platforms. Quality does not suffer. If we were to try to force reporters to cross platforms while operating under daily deadlines then quality could suffer depending on the nature of the story and the extra time consumed" (#246). Another editor summed up this issue: "Some employees can capably handle multiple media and tell stories effectively. Others cannot. Certainly strong technical skills and training can help, but it's not just dependent on that; it depends more on the attitude and aptitude of the journalist" (#270).

Quality multimedia work also involves a solid understanding of different cultures in different media. Editors both for and against media convergence noted the difficulty of merging different media with different cultures; and editors in those merged media called for flexibility in aptitude and willingness to cooperate across platforms. For instance, Editor #149 wrote:

> Clarity of what convergence means to the news organization is vital and often lacking. This causes unneeded anxiety. Managers have to realize that each medium has its own culture, language, skill set and timetable and is naturally skeptical of anything unfamiliar. It is also true that these same journalists' stock in trade is learning a new culture, language, skill set and timetable—on a daily basis. Therein lies the hope for an efficient news operation running on all cylinders and an effective —maybe even happy—staff.

We have noticed that no significant statistical differences existed between the editors and news professionals from the converged media companies and their counterparts from the not-yet-converged media companies when they answered the questions reported above.

4. Should news staff be financially compensated for producing news content for another media platform in a merged media company?

This question showed a big contrast between editors' and news professionals' answers. A T-test on the mean (3.36) of the editors' answers and that (4.23) of the news professionals' answers showed a significant difference ($t=6.9$, $df=287$, $p<0.001$). Editors were not quite sure whether such compensations should be in place while the news professionals were mostly very positive.

5. Who benefits from media convergence?

All respondents were asked, "Do you think that merging media companies such as television station, newspaper, radio station, and online news from a local area will benefit any of the parties listed on the left? Check all entries that apply." The entries included "The general public," "News professionals," "Media companies," "Nobody," and "Not sure." We designed this question about the legitimacy of media merger as a barometer for testing the respondents' political view on media convergence.

Most respondents (70%) pointed to media companies as the beneficiary of media mergers. In comparison, 43% of the respondents said that media mergers also benefit the general public, and 27% of them said that media mergers benefit news professionals.

Figure 2: respondents' political view of media convergence

	Benefiting media companies	Benefiting the general public	Benefiting news professionals
	Yes	Yes	Yes
Editors	73%	47%	30%
Professionals	66%	38%	24%

By reading the percentage numbers vertically in Figure 2, we find that consistently fewer respondents believed that media mergers benefit the general public or news professionals; also consistently more respondents believed that media mergers benefit media companies. It is also noticeable that 47% of editors believed that media mergers benefit the general public while the other 53% didn't. Editors' opinions on this point were roughly equally split. This finding indicates that media merger *is* a grand experiment in the media industry. Its benefits to the general public, which can better legitimize media mergers, are yet to be explored in the years to come.

By reading the percentage numbers horizontally in Figure 2, we also find that editors were more positive about the benefits media mergers could bring to all three parties. It is logical to reason that management personnel, such as editors and news directors and the companies they represent, are the primary forces behind today's media merger movement.

The question is that, since most news professionals did not believe that media mergers benefit news professionals or the general public, why did most news professionals still want to be trained to be multiplatform practitioners? Considering the editors' most positive attitude toward media convergence, we wonder if news professionals were under the pressure to do so. Our surmise is partially corroborated by some textual answers. A news anchor from a merged media company agreed that new hires should have received multiplatform training in writing and visuals and should possess multiple sets of skills. She showed her understanding for media mergers:

> The merging of media companies is almost a daily occurrence. The pool of entities providing news services is shrinking. I think there is a danger that the public will lose in this race for media giants to accumulate wealth. At the same time, with the amount of competition in the industry from cable networks, the Internet, DVD's etc., I see the financial need for companies to merge to survive (#357).

A newspaper reporter also from a merged media company expressed a similar feeling: "I am not all for the media convergence… At the same time I find it quite beneficial to be savvy in all branches of the industry. It helps the journalist become more knowledgeable about her or his job" (#301).

Very few respondents (19%) believed that media mergers benefit all three parties, the general public, news professionals, and media companies. About one third of the respondents (35%) believed that media companies are the only beneficiaries to such a practice.

Discussions and Conclusions

As an experimental industrial trend, media convergence in the sense of media mergers is still in its formative stage. Whether it will sustain its momentum to reach popularity in the nation is yet to be seen. Media convergence, however, initiated and made possible by digital technology, is more than media mergers propelled largely by financial considerations. More pervasive is the media convergence in the senses of content convergence, technological convergence, and especially role convergence, which have occurred not only in merged media companies but also more in non-merged ones. No matter whether media mergers will continue, the other three forms of media convergence, which are not subject to the FCC regulations, are likely to continue. Multiplatform news reporting will be tomorrow's way news is presented.

Most editors and news professionals in this survey are not from merged media companies. Many editors and news professionals do not yet see media mergers as beneficial to the general public and news professionals. But their backgrounds and political views do not prevent them from sharing with other respondents with different backgrounds and political views many opinions regarding practicing news across platforms. Such common understanding is shaping a force to push forward the media convergence in the nation. Media practitioners need to think more about how the general public can benefit from convergence so that convergence can be better legitimized. Media managements also need to think about how news practitioners can benefit from convergence and how their efforts in repurposing stories can be recognized apart from adding their names to bylines in another platform.

The fact that most news professionals wished to learn skills on the job, to some extent, reflected their need for technological update at their current positions, so that they can better qualify for multimedia productions. It is important that media management provide resources and time for mid-career professionals to learn multiplatform reporting skills. The finding also implies that future journalists need multiplatform reporting training while in school. Learning critical thinking is important for students, but learning different technical skills for multiple media platforms will make journalism students more competitive reporters.

As more news companies are practicing multiplatform reporting with or without their companies being merged, it is important that editors with multiplatform experiences are chosen to direct newsroom businesses. Many editors need multiplatform training more urgently than news professionals do if the news company they work for produces news contents for multiple media platforms on a daily basis. Many opportunities are out there for news companies and universities to work together to explore the issue of media convergence and provide mid-career professionals and editors multiplatform technological training. It seems sensible that opportunities for learning multimedia skills should be made available both on campus and through off-site continuing education programs.

The study shows that convergence should not become an excuse for productions of poor quality. Both editors and news professionals do care about quality, but they are not prevalently concerned about the quality of work currently re-purposed for multiple media platforms. Therefore, there is no reason to be concerned that future journalists who are being trained on multiple media platforms and better prepared for convergence will be jacks of all trades but masters of none or will produce worse reporting. Training students to practice news in multiple media platforms will help bridge newsroom cultures from different media and eventually erase such differences.

The study also shows that, to conduct high-quality reporting, knowing how to write is still the expected top priority for news professionals with any specializations. Therefore, when mid-career professionals update their multimedia knowledge and learn new technology, they should continue to learn to write for different platforms. News professionals working in converged media need to learn to express their critical thinking both in texts and in images.

More studies need to be done to further evaluate the legitimacy of media convergence including how this phenomenon is affecting the democracy in this country, the quality of the news presentations produced under the convergence pressure, the wellbeing of the news professionals in a convergence environment, and the audience/readers/Web surfers.

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[1] Some negative examples have triggered a red light. "In Milwaukee," Nelson (2002) wrote: "the guy who owned the local paper and a local television station wanted a new stadium built. Predictably, both media outlets essentially heralded the plan, drowning out opposing views." Barrie Zwicker, media critic for Toronto-based Vision TV, says that mergers and buyouts will create a narrower range of facts and opinions though they will make media owners wealthier (Summerfield, 2000).

[2] FAIR newsletter received via email by Edgar Huang on December 5, 2002.

[3] Bulla (2002) also believed that "the machine that combines television, Internet browser, and cellular telephone may not make it because consumers prefer specialized products that perform well instead. A hybrid does not always become popular with consumers. Ultimately, the issue may not be how many gadgets can go in one box, but how well the box does many things well in less time." Some other scholars and professionals such as Blethen (2002) and Russial (1995) also mentioned the concern that journalists in converged environments will have less time for their traditional journalistic tasks such as editing and writing if they have to learn new technology such as constructing Web pages and performing electronic production.

[4] The timing of the survey could have caused the comparatively low response rates for editors and news professionals. The survey invitation emails went out approximately ten days before Thanksgiving, which coincided with the sweeps period for television stations. Another possible cause was that emails for many editors and news professionals especially in TV stations were nowhere to be found on their Web sites, and invitations had to be sent via generic emails, which could be easily deleted or neglected.

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Submission for AEJMC – 2003
Accepted by Communication Technology and Policy Division

Internet Regulation – An Oxymoron?

Maria Fontenot
Doctoral Student
College of Communications
University of Tennessee
333 Communications and UEB
Knoxville, TN 3799-0333
mfonteno@utk.edu
865-387-0505

Internet Regulation – An Oxymoron?

Abstract:

Several Congressional attempts to protect children from obscenity on the Internet have been dismissed by the courts. This paper focuses on two of those attempts: the Communications Decency Act of 1996 and the Child Online Protection Act of 1998. It examines and analyzes Supreme Court cases and decisions related to the two statutes and the First Amendment implications of regulating the Internet and World Wide Web. It also identifies regulatory patterns and addresses what lies ahead for cyberspace regulation.

Introduction

The First Amendment of the United States Constitution states that Congress "shall make no law…abridging the freedom of speech, or of the press…"[1] For absolutists, "no law" means *no law.* But today it seems as though technological advances are killing that very freedom. Luckily, the courts have gone through great lengths to protect our First Amendment rights. This paper examines the constitutional challenges of Congressional statutes proposing regulation of the Internet and the World Wide Web. It analyzes the Communications Decency Act of 1996 (CDA) and the Child Online Protection Act of 1998 and the Supreme Court decisions related to the two statutes along First Amendment implications of regulating the Internet and World Wide Web. The paper looks at Congress' rationale for attempting such regulatory action. Finally, it identifies regulatory patterns and addresses what lies ahead for cyberspace regulation.

The subject of sex on the Internet and World Wide Web was commonly discussed in the early nineties. But after the Georgetown Law Review published an article on the subject in 1995[2], the discussions intensified. While many critics attack the credibility of the researcher and the results of the study, some scholars venture to say that it was this law review article that sparked the development of two federal statutes banning the transmission of adult material via the Internet: The Communications Decency Act of 1996 and the Child Online Protection Act of 1998.

The law review article was based on a Carnegie Mellon study that concluded that the exchange of sexually related images was one of the largest recreational applications by Internet users. The Carnegie-Mellon 18-month study found more than 900,000 explicit photos, stories, and films on the Usenet. The ease of access made parents and several legislators, mainly Senator

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[1] U. S. Constitution, Amendment I.

[2] Marty Rimm, "Marketing on the Information Superhighway," Georgetown Law Review 83 (June 1995), 1849.

James Exon, concerned enough to lobby for a decency act; hence the Communications Decency Act of 1996.[3]

The Communications Decency Act of 1996

In 1996, Congress passed the first major overhaul of federal communications legislation since 1934, The Telecommunications Act of 1996 (The Telecomm Act). Part of the 1996 Act was the Communications Decency Act (CDA) which was born over concern of children's access to obscene and indecent material via computer. Provisions of the CDA criminally prohibit:

> (1) under 47 USCS 223(a), the knowing transmission, by means of a telecommunications device, of "obscene or indecent" communications to any recipient under 18 years of age; and (2) under 47 USCS 223(d), the knowing use of an interactive computer service to send to a specific person or persons under 18 years of age (47 USCS 223(d)(1)(A)), or to display in a manner available to a person under 18 years of age (47 USCS 223(d)(1)(B)), communications that, in context, depict or describe, in terms "patently offensive" as measured by contemporary community standards, sexual or excretory activities or organs. Violators of the CDA face penalties including up to 2 years in prison for each violation. However, the CDA provides affirmative defenses, under 47 USCS 223(e)(5), with respect to those who (1) take good faith, reasonable, effective, and appropriate actions to restrict access by minors to the prohibited communications; or (2) restrict such access by requiring certain designated forms of age proof, such as a verified credit card or an adult identification number or code.[4]

Shortly after the President signed of the 1996 Telecomm Act, two separate actions were filed in the United States District Court for the Eastern District of Pennsylvania, in each of which multiple plaintiffs--including organizations and individuals who were involved with the computer or communications industries, the publication or posting of materials on the Internet, or citizen groups--challenged the constitutionality of 223(a) and 223(d). The two actions were consolidated, and a three-judge District Court convened pursuant to an expedited review provision of the CDA. After an evidentiary hearing, the District Court, ruling that 223(a) and

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[3] Philip Elmer-DeWitt, "On a Screen near you: Cyberporn." *Time 146* (July 3, 1995), 38.
[4] 929 F. Supp 824.

223(d) were unconstitutional, granted the plaintiffs' motions for preliminary injunction against enforcement of 223(a) and 223(d).[5]

Reno v. American Civil Liberties Union

The CDA of 1996 (part of the Telecomm Act of 1996) prohibits the transmission of indecent and patently offensive materials to minors over the Internet. Several civil rights and computer groups challenged the constitutionality of these provisions on First Amendment grounds. These groups argued that the inability of Internet users and providers to verify the age of recipients effectively prevented them from engaging in indecent speech (protected by the First Amendment). At issue in this case was the constitutionality of two statutory provisions [223(a) and 223(d)] enacted to protect minors from "indecent" and "patently offensive" communications on the Internet.

A special three-judge district court made extensive findings of fact that describe the character and the dimensions of the Internet, the availability of sexually explicit material in that medium, and the problems confronting age verification for recipients of Internet communications. The court sided with the groups and ruled that the CDA provisions violated the First Amendment.[6] On direct appeal under the CDA's expedited review provision, the United States Supreme Court affirmed.

In an opinion by Justice Stevens, joined by Justices Scalia, Kennedy, Souter, Thomas, Ginsberg, and Breyer, it was held that both provisions of the CDA abridged freedom of speech protected by the First Amendment because:

> (1) 223(a) and 223(d) were content-based blanket restrictions on speech which could not properly be analyzed as regulations of the time, place, and manner of speech; (2) there was no basis for qualifying the level of Constitutional scrutiny that should be applied to the Internet;

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[5] Id.

[6] First Amendment Center. Freedom of Speech, 96-97 Term. 1997.
Internet on-line. http://www.fac.org/legal/supcourt/96-97/Reno_sum.htm.

> (3) the many ambiguities concerning the scope of 223(a) and 223(d) rendered the provisions problematic for First Amendment purposes; (4) the unprecedented breadth of the coverage of the provisions imposed an especially heavy burden on the federal government to explain why a less restrictive provision would not be as effective; (5) the provisions in question were not narrowly tailored to the goal of protecting minors from potentially harmful materials; (6) the 223(e)(5) and other defenses proffered by the government did not constitute the sort of narrow tailoring that would save an otherwise patently invalid unconstitutional provision; (7) the government's assertion that an interest in fostering the growth of the Internet provided an independent basis for upholding the constitutionality of 223(a) and 223(d) was unpersuasive.[7]

Justice O'Connor, joined by Chief Justice Rehnquist, concurred in part and dissented in part.

In the dissenting opinion, O'Connor wrote:

> Despite the soundness of its purpose, however, portions of the CDA are unconstitutional because they stray from the blueprint our prior cases have developed for constructing a "zoning law" that passes constitutional muster. Insofar as the "indecency transmission" and "specific person" provisions prohibit the use of indecent speech in communications between an adult and one or more minors, however, they can and should be sustained.[8]

O'Connor wrote that the 'indecency' provision and 'specific person' portion of the patently offensive provision were not unconstitutional in all of their applications. Because the rights of adults are infringed by these provisions as applied to communication involving more than one adult, O'Connor would have invalidated those provisions of the CDA only to that extent. Specifically, the "indecency transmission" provision makes it a crime to transmit knowingly an indecent message to a person the sender knows is under 18 years old. The "specific person" provision involves the same conduct, although it does not as explicitly require the sender to know that the intended recipient of this indecent message is a minor.[9]

Children's Online Protection Act (COPA)

In response to the Court's decision concerning the CDA, Congress passed another general Internet content regulation law – the Child Online Protection Act (COPA). COPA is narrower than the CDA: it attempts to target pornography on the World Wide Web by prohibiting material that is "harmful to minors." The law prohibits any person from knowingly, in interstate or foreign commerce by means of the World Wide Web, making any communication for commercial purposes that is available to any minor, including material that is harmful to them.[10] Drawing on the three-part test for obscenity set forth in *Miller v. California*, 413 U.S. 15, the statute defines "material that is harmful to minors" as

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[7] Reno v. American Civil Liberties Union, 521 U.S. 844, 117 S. Ct. 2329 (1997).
[8] Id.
[9] Id.

> any communication, picture, image, graphic image file, article, recording, writing, or other matter that is obscene or that (1) the average person, applying contemporary community standards would find, taking the material as a whole and with respect to minors, is designed to appeal or pander to the prurient interest; (2) depicts, describes, or represents, in a manner patently offensive with respect to minors, an actual or simulated sexual act or sexual contact, an actual or simulated normal or perverted sexual act, or a lewd exhibition of the genitals or post-pubescent female breast; and (3) taken as a whole, lacks serious literary, artistic, political, or scientific value for minors.[11]

A month before COPA was scheduled to go into effect, a group of organizations filed suit against the United States Attorney General in the United States District Court for the Eastern District of Pennsylvania to challenge the statute's validity under the First Amendment. The organizations alleged a fear of prosecution under COPA on the ground that some sexually oriented material on the organizations' website, although valuable for adult, could be construed as "harmful to minors" in some communities.[12] For example, the material on OBGYN.net, a plaintiff in this suit, could easily be deemed ***harmful to minors*** in some communities though its material has true informational value.[13]

Ashcroft v. American Civil Liberties Union

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[10] Ashcroft v. American Civil Liberties Union, 122 S. Ct. 1700 (2002).
[11] Id.
[12] Id.
[13] M. Rogers and N. Oder, "Congress passes Coats' 'CDA II," *Library Journal 123* (November 1998): 13.

The District Court, concluding that the organizations had established a likelihood of success on the merits, granted their motion for a preliminary injunction barring the Federal Government from enforcing COPA until the merits of the organizations' claims could be adjudicated.[14] The United States Court of Appeals for the Third Circuit affirmed the District Court's decision reasoning that COPA's use of "contemporary community standards" to identify material that was harmful to minors rendered COPA substantially overbroad.[15] On appeal, a three-judge panel from the Third Circuit agreed that COPA violated the First Amendment but it did so on different grounds: the government cannot constitutionally apply "contemporary community standards" in cyberspace. The government appealed to the United States Supreme Court, which granted certiorari on May 21, 2001.

At issue in this case was whether the government's reliance on "contemporary community standards" to determine whether material on the World Wide Web is "harmful to minors" violates the First Amendment. The Court held that it did not. It was held that COPA's reliance on community standards to identify material that was harmful to minors did not, by itself, render COPA facially overbroad. In May of 2002, the Supreme Court remanded the case to the Third Circuit Court of Appeals for consideration of COPA as a whole but the national variation in community standards might justify enjoining enforcement of COPA.[16]

Justice Thomas, joined by Chief Justice Rehnquist, Justices O'Connor, Scalia, and Breyer, wrote the opinion of the court. They expressed the view that COPA, by defining the harmful-to-minors material in a manner parallel to the Supreme Court's definition of obscenity, did not appear to restrict Web publishers from displaying a significant amount of material that would constitute protected speech in some communities but would run afoul of community standards in others. Also, in the context of the facial challenge at hand, it would not have been prudent to speculate as to whether certain hypothetical jury instructions as to the nature of "contemporary community standards" would be consistent with COPA. In addition, the Court's community-standards jurisprudence was applicable to the nationwide medium of the Internet. And finally, the organizations had offered little more than speculation in attempting to demonstrate that COPA's reliance on those community standards rendered the statute substantially overbroad.[17]

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[14] 31 F Supp 2d 473.
[15] 217 F3d 162.
[16] Id.

In the Court's opinion, Thomas compared COPA to the CDA. He wrote:

> Our holding was based on three crucial considerations. First, 'existing technology did not include any effective method for a sender to prevent minors from obtaining access to its communications on the Internet without also denying access to adults.' Second, 'the breadth of the CDA's coverage was wholly unprecedented.' 'Its open-ended prohibitions embraced,' not only commercial speech or commercial entities, but also 'all nonprofit entities and individuals posting indecent messages or displaying them on their own computers in the presence of minors.' In addition, because the CDA did not define the terms *indecent* and *patently offensive*, the statute 'covered large amounts of nonpornographic material with serious educational or other value.' As a result, regulated subject matter under the CDA extended to 'discussions about prison rape or safe sexual practices, artistic images that include nude subjects, and arguable the card catalog of the Carnegie Library.' Third, we found that neither affirmative defense set forth in the CDA 'constituted the sort of *narrow tailoring* that would save an otherwise patently invalid unconstitutional provision.' Consequently, only the CDA's ban on the knowing transmission of obscene messages survived scrutiny because obscene speech enjoys no First Amendment protection.[18]

Justice O'Connor, concurring in part, expressed the view that even if obscenity on the Internet were to be defined in terms of local community standards, the plaintiffs had not shown that COPA was overbroad solely on the basis of the variation in the standards of different communities. Also, adoption of a national standard was necessary for reasonable regulation of Internet obscenity.[19]

Justice Breyer, also concurring in part, said that for purposes of the statute, Congress intended the word *community* to refer to the nation's adult community taken as a whole, not to geographically separate local areas and variation reflecting application of the same national standard by different local juries would not violate the First Amendment.[20] Also concurring were Justices Kennedy, Souter and Ginsburg. They believed that the Supreme Court had properly vacated the Appeals Court opinion

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[17] Ashcroft v. American Civil Liberties Union, 122 S. Ct. 1700 (2002): 2.
[18] Id. 5.
[19] Id. 2.

Only Justice Stevens dissented. He stated that because communities widely differ in attitudes towards sex, particularly when minors are concerned, the Court of Appeals was correct to conclude that – regardless of how COPA's provisions other than the community-standards provision were construed – applying community standards to the Internet would restrict a substantial amount of protected speech that would not be considered harmful to minors in many communities.[21] "In the context of the Internet,…community standards become a sword, rather than a shield. If a prurient appeal is offensive in a Puritan village, it may be a crime to post it on the World Wide Web."[22]

CDA v. COPA

As noted earlier, COPA was Congress' attempt to rewrite the CDA. COPA does not appear to suffer from the same flaw (as does the CDA) because it applies to significantly less material than the CDA did and defines the *harmful to minors* material restricted by the statute in a manner parallel to the Miller definition of obscenity. To fall within the scope of COPA, works in question must not only "depict, describe, or represent, in a manner patently offensive with respect to minors," particular sexual acts or parts of the anatomy. They must also be designed to appeal to the prurient interest of minors and "taken as a whole, lack serious literary, artistic, political, or scientific value for minors."[23] While COPA drew on the Miller obscenity test, the

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[20] Id.

[21] Id.

[22] Mark Walsh, "Court leaves Future of Online-Protection Law Uncertain," *Education Week 21* (May 2002): 26.

[23] 47 U.S.C. § 231 (e)(6).

CDA did not include any limiting terms resembling Miller's additional two prongs. It neither contained any requirement that restricted material appeal to the prurient interest nor excluded from the scope of it coverage works with serious literary, artistic, political, or scientific value. Also, while the CDA allowed juries to find material to be patently offensive so long as it depicted or described sexual or excretory activities or organs, COPA specifically delineates the sexual activities and anatomical features, the depictions of which may be found to be patently offensive: "an actual or simulated sexual act or sexual contact, an actual or simulated normal or perverted sexual act, or a lewd exhibition of the genitals or post-pubescent female breast."[24]

Another important difference between the two statutes is commerce. For instance, COPA applies only to communications for commercial purposes. Though COPA limits itself to regulating commercial website operators and contains a much more precise definition of *indecent* material, it does not address the often emphasized limitation on the ability of distributors to identify the recipients of their speech. In addition, it required commercial web sites to collect a credit card number or other proof of age before allowing Internet users to view pornographic material that may be deemed harmful to minors. Because COPA applied to commerce on the Internet, Commerce Clause issues were raised.[25]

For example, in *Cyberspace Communications, Inc. v. Engler* (2001), a United States District Court for the Eastern District of Michigan considered whether a Michigan state statute (1999 Public Act 33) regulating the dissemination of sexually explicit materials to children violates the

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[24] Id.

[25] The Commerce Clause grants power to Congress and a less obvious restriction on the power of state government to regulate interstate commerce (The Dormant Commerce Clause). The Dormant Commerce Clause is a constitutional restriction on the power of local authorities to pass regulations for the purposes of placing local economic actors in a better competitive position. Even where such improper motives are absent, however, the need for an effective national infrastructure nonetheless limits local authority. [Fred L. Wilks, "The Community Standards Conundrum in a Borderless World: Making Sense of Obscenity Law in Cyberspace," *The UCLA Online Institute for Cyberspace Law and Policy* (Spring 1998), 2].

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First Amendment and/or the Commerce Clause of the U. S. Constitution. The district court issued a preliminary injunction in July, 1999. The decision was affirmed by the Sixth Circuit and remanded for further proceedings. On remand, the district court granted the plaintiff's motion for summary judgment that permanently enjoined the defendant from enforcing the Act. The district court based its holding on the statute's undue content-based limitation on speech. The court recognized that the state had a compelling interest in protecting children from exposure to obscene materials. But, the court found that the defendants failed to demonstrate that less intrusive means would not achieve similar restrictions. The court noted that filters, child-friendly software, or the on/off switch of the computer, all of which are less intrusive, would allow parents to control the information coming into the home via the Internet. The court further held that the statute violated the Dormant Commerce Clause, which precludes the application of a state statute to commerce occurring outside of a state's borders. The court said that by regulating content or information transmitted to Michigan's children via the Internet, the Act attempted to control Internet communications that might originate in states and countries outside Michigan. The court denied defendants' request to limit the relief to the challenged provisions of the statute, stating that courts would not rewrite laws to create constitutionality.[26]

Analysis

1. CDA Decision

As discussed earlier, the Supreme Court struck down the CDA's "patently offensive" and "indecent transmission" provisions in *Reno v. ACLU*, deeming it constitutionally overbroad under the First Amendment. Though government has a compelling interest in protecting children, the aim of the CDA, the problem was that CDA's regulations would have the effect of limiting adults' access to speech they have a constitutional right to receive. Only its regulation of obscenity, which is not protected by the First Amendment, was upheld.[27]

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[26] "Constitutional Law: Additional Developments," *Berkeley Technology Law Journal 17* (2002), 2.

The Court's ruling in *Reno v. ACLU,* concerning content-based regulation of the Internet, is completely justified. Regulation of other media, namely broadcast media, has been based on three factors: historical regulation, scarcity of access, and level of intrusiveness.[28]

The historical aspect is inapplicable. The Internet is a new medium; so new that no governmental agency has been given power to "oversee" it. The Federal Communications Commission was formed to oversee radio communications. The rationale for regulating broadcast media, according to the government, was that the airwaves were owned by the public. Therefore, broadcasters were to serve the public interest, convenience, and necessity.[29] So far the Internet has been viewed as a private entity.

Likewise, the scarcity of access argument is inapplicable to the Internet. Broadcast media are regulated because there is a limited amount of bandwidth for television and radio and because they use "public airwaves." There is no physical limitation on the Internet preventing users from sending messages. Scarcity is not a problem with the Internet. The Court said the Internet should not be subject to the kind of broad regulations to which broadcasting is subjected. It added that the Internet is a unique medium, different from broadcasting.[30]

There are clear distinctions between the Internet and other regulated media. Generally the government regulates a message communicated by any medium by the content of that particular message.[31] But in some instances, regulation is also influenced by the kind of medium through which the message is transmitted: the printed press, the over-the-air broadcast media, cable television, and the telephone. The printed press or print media enjoys the greatest First Amendment protection while broadcast media enjoy the least amount of First Amendment protection. The hierarchy of protected expression is as follows: (1) political, religious, social speech and (2) symbolic, commercial speech, broadcast indecency. False advertising, fraud, obscenity, and fighting words do not receive First Amendment protection.[32]

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[27] David K. Djavaherian, "First Amendment: Indecency: *Reno v. ACLU,*" *Berkeley Technology Law Journal 13* (1998).

[28] U. S.., 117 S. Ct. (1997).

[29] Don R. Pember, *Mass Media Law* (Boston: McGraw-Hill, 2001), 588.

[30] 521 U. S. 844 (1997).

[31] Don R. Pember, *Mass Media Law* (Boston: McGraw-Hill, 2001), 119.

Applying the intrusiveness argument to the Internet is more complicated. Again, unlike broadcasting, the Court said Internet regulation should not be analyzed under the same First Amendment standard applied to broadcasting because it is less intrusive than broadcasting. Broadcasting is an invasive medium because radio and television stations enter homes for free at all hours. A person, whether a child or adult, tuning in a radio or television program may inadvertently be exposed to offensive material if the government did not restrict content on broadcast stations.[33] Seldom is content on the Internet encountered by mere accident. Gaining access to the Internet takes deliberate actions: turning on the computer, connecting to an Internet service provider, and entering a specific site. It is less likely that Internet users will accidentally receive objectionable material online.[34]

2. COPA Decision

COPA drew on the three-part obscenity test from *Miller v. California* requiring jurors to apply "contemporary community standards" in assessing material. The Supreme Court held that COPA's reliance on *contemporary standards* to identify what material is *harmful to minors* does not by itself render the statute substantially overbroad for First Amendment purposes. However the Court expressed no view as to whether the statute suffered from substantial overbreadth for reasons other than its use of community standards, whether the statute is unconstitutionally vague, or whether COPA survived strict scrutiny.[35] The Justices, with the exception of Stevens, favored a national standard with respect to the Internet.

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[32] Id. 120.
[33] Id.
[34] A. John Harper III, "Traditional Free-Speech Law: Does It Apply on the Internet?" *Southern Methodist University School of Law – Computer Law Review & Technology Journal 6* (Spring 2002).

In regards to a national standard, the parties dispute the nature of the community standards that jurors will be instructed to apply when assessing whether works appeal to the prurient interest of minors and are patently offensive with respect to minors. However, the respondents contend that jurors will evaluate material using their local community standards.[36] But, communities on the Internet do not have geographic borders. Though most of the Justices favored a national standard, they were not sure how to apply it to the Internet.[37] But this was not the first time that a national standard issue faced the courts. The Supreme Court under Chief Justice Warren spoke of a national standard in *Roth v. Unites States*.[38] In 1957, the Warren Court employed a community standard, but the Warren Court's standard was the same for the entire nation. In *Miller v. California* however, Chief Justice Burger opposed a national community standard because he thought a single standard for the entire nation was too abstract.[39] Burger also admitted that using different state and local standards may cause some distributors to censor their sexually oriented materials to conform to the tastes of the most conservative markets rather than risk prosecution in different communities under different standards.[40]

The issue of borders in cyberspace came up in *UEJF and Licra v. Yahoo! Inc. and Yahoo France* (2000): a French court decision, holding the American corporation Yahoo! liable for permitting Nazi memorabilia to be displayed and auctioned off on its Web site, suggests that national borders are alive in cyberspace.[41] In early 2000, the French-based League Against Racism and Anti-Semitism and the French Union of Jewish Students brought a legal action against Yahoo! in the Tribunal de Grande Instance de Paris (hereinafter the court). Their petition claimed that Yahoo!'s display of Nazi memorabilia for sale on its U.S. auction site, along with Yahoo!'s display of pro-Nazi propaganda, violated Section R 645-1 of the French Criminal Code. That section generally prohibits the display in France of uniforms, symbols, or emblems of those organizations and persons responsible for crimes against humanity (such as the Holocaust). Yahoo! responded in part by arguing that the French court lacked jurisdiction and that the content of its Internet site was protected by free speech principles. On May 22, 2000, the French court rejected Yahoo!'s defenses and embraced the petition in strong language:

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[35] 47 U.S.C. §231(a)(1).
[36] Ashcroft v. American Civil Liberties Union, 122 S. Ct. 1700 (2002).
[37] Jason Krause, "Can Anyone stop Internet Porn?" *ABA Journal 88* (September 2002), 59.
[38] 354 U. S. 476 (1957).
[39] 413 U. S. 15 (1973).
[40] Kent Middleton, Robert Trager, and Bill Chamberlin, *The Law of Public Communication*, 5th ed. (New York: Longman, 2001), 347.

> Whereas the exhibition of Nazi objects for purposes of sale constitutes a violation of French law...and even more an affront to the collective memory of a country profoundly traumatized by the atrocities committed by and in the name of the criminal Nazi regime against its citizens and above all against its citizens of the Jewish faith; Whereas by permitting these objects to be viewed in France and allowing surfers located in France to participate in such a display of items for sale, the Company YAHOO! Inc. is therefore committing a wrong in the territory of France, a wrong whose unintentional character is averred but which has caused damage to be suffered by LICRA (League Against Racism and Anti-Semitism) and UEJF (French Union of Jewish Students), both of whom are dedicated to combating all forms of promotion of Nazism in France, however insignificant the residual character of the disputed activity may be regarded in the context of the overall running of the auctions services offered on its Yahoo.com site; Whereas the damage being suffered in France, our jurisdiction is therefore competent to rule on the present dispute under Section 46 of the New Code of Civil Procedure.[42]

Therefore, the Paris court ordered Yahoo! to take measures to dissuade and make impossible any access by an Internet surfer calling from France to disputed sites and services – especially the site offering Nazi objects for sale. At a later hearing, Yahoo! offered evidence that it could not technologically comply with the order. The court then appointed a panel of three international experts from France, Great Britain, and the United States, to investigate Yahoo!'s assertion. The court relied on this report from the panel to rule that the Internet site should employ filtering software targeted at French Internet protocol (IP) addresses, trying to access the Nazi site, and that Yahoo! should also require surfers to make known their nationality. Yahoo! had three months to comply or face 100,000 francs per day penalty.[43] Yahoo! filed a federal court complaint in California seeking declaratory relief, to preclude enforcement of the French court decision, on the grounds that France lacks jurisdiction, and that the French ruling violates the First Amendment to the U.S. Constitution as well as the U.S. Code (which purportedly immunizes Internet Service Providers (ISPs) from liability for third-party content). In June 2001, the California federal court permitted the Yahoo! complaint to proceed after rejecting the French defendants' motion to dismiss, which had raised personal jurisdiction objections. The federal court's ruling, however, failed to accord the French judgment the comity due under international law. Subsequently, the California federal court granted summary judgment for Yahoo! reasoning that no U.S. court could enforce a French judgment contrary to the First Amendment.[44]

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[41] Mark S. Kende, "Frontiers of Law: The Internet and Cyberspace: Yahoo!: National Borders in Cyberspace and their Impact on International Lawyers," *New Mexico Law Review 32* (Winter, 2002), 2.
[42] Id. 4.

Though the French Yahoo! decision specifically dealt with international law, it illustrated that the assumingly borderless cyberspace has meaningful national borders. It also illustrated that technology to remedy potential problems, such as selling offensive materials to persons in conservative parts of the world, does not yet exist. But the biggest implication that the French Yahoo! decision could have on COPA is that American courts have rejected the idea of geographic filtering embraced by the French court.[45] Therefore, they would most likely reject that idea embraced by other international courts. So, it is possible that some judicial districts in the U. S. could also reject geographic filtering within the U. S.

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[43] Id.
[44] Id. 5.

Jury instructions pose another potential problem. Under the *Miller* ruling, jurors are required to draw upon their own knowledge of the views of the average person in their community in order to determine what appeals to the *prurient interest* and what is *patently offensive*. Under this application of local community standards, the issue of appropriate venue in obscenity cases under Federal law has become a critical issue. For example in *United States v. Thomas* (1996),[46] a northern California couple who were operating a electronic bulletin board that provided sexually explicit photographs were indicted and convicted for knowingly using a means of interstate commerce to transmit obscene material. But, because they provided access to an undercover Unites States Postal Inspector in Memphis, Tennessee, they were tried according to the local community standards of Memphis. Thomas argued on appeal that the court had improperly instructed the jury to apply those standards of Memphis residents rather than a new definition of a community based on the broad-ranging connections among people in cyberspace. Thomas ultimately lost the appeal; but an interesting issue arose – whether the same rule would be applied where an Internet provider could not bar access to citizens of sensitive, conservative communities.[47]

If a national community standard is defined, then jurors would have to be instructed to apply those standards in relevant cases. Obviously national jury instructions would have to be written specifically tailored for the national standards. Since the Supreme Court remanded the *Ashcroft* case back to the Third Circuit Court of Appeals, the world must patiently wait for the answer.

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[45] Mark S. Kende, "Frontiers of Law: The Internet and Cyberspace: Yahoo!: National Borders in Cyberspace and their Impact on International Lawyers," *New Mexico Law Review 32* (Winter, 2002), 6.

[46] 74 F. 3d 701 (1996).

[47] Fred L. Wilks, "The Community Standards Conundrum in a Borderless World: Making Sense of Obscenity Law in Cyberspace," *The UCLA Online Institute for Cyberspace Law and Policy* (Spring 1998), 3.

Regulating the Internet – What lies ahead

Though the Supreme Court remanded *Ashcroft v. ACLU* to the Third Circuit Court of Appeals, many of the Justices were in favor of a national community standard in dealing with children, obscenity and the Internet. But, the issue has not been addressed since the Warren Court and the *Miller* decision. *Miller*, a decision made nearly thirty years ago, has been the standard in which obscenity cases are decided. Is the *Miller* standard showing its age? Back in 1973, the standard applied to mediums of speech that differ in a fundamental way from the Internet and World Wide Web.[48] Yet no one is willing to admit or say that the *Miller* test is out of date. With rapid technological advances, the old laws of the previous century seem obsolete. If there must be regulation, it should be applicable to today's medium. For instance, when cable television boomed in the 1980s, the FCC regulated as needed with the Cable Communications Policy Act of 1984. It did not apply broadcast standards to a medium that was clearly distinct from free over-the-air broadcast television.[49]

The Courts have distinguished among print media, broadcast media, telephony and cable television by applying four basic criteria: (1) The capacity of the medium to carry messages. Are there an unlimited number of channels, or is capacity limited in some way? (2) The traditional relationship between the government and the medium. Has the medium traditionally been free, or has regulation been imposed from the inception of the medium? (3) The pervasiveness or invasiveness of the medium. What role does the receiver play in receiving messages? Does the receiver have to actively seek the message, or can he be a largely passive recipient? (4) The accessibility of the medium. How easy is it for children to gain access to the message communicated by the medium?[50]

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[48] Id. 5.
[49] Don R. Pember, *Mass Media Law* (Boston: McGraw-Hill, 2001), 623.

Earlier it was determined that the historical, scarcity, and intrusiveness arguments were inapplicable and the Internet should not be regulated like a broadcast medium. Based on the criteria above, the Internet should be regulated as print media. Applying the criteria, it seems obvious. There are no physical limits on the number of websites that can be published. Also, like the printed press, the receiver must take an active role in surfing the Internet and then have the literacy skills to read the text.[51] The Internet should receive the highest level of First Amendment protection and least amount of regulation.

Protecting children has always been a compelling government interest. But, it is not the government's job to regulate to the extent of limiting the amount of speech viewed by adults. The government has not been successful in those areas. CDA, COPA, and ICANN (Internet Corporation for Assigned Names and Numbers) are examples of unsuccessful Congressional initiatives. ICANN recently passed over an opportunity to implement top-level domain names that denote Internet sites containing adult-oriented material – the domain name ".xxx" – and those that denote child-friendly sites – ".kids."[52]

But despite the unsuccessful attempts, Congress' determination to protect children was obvious. In 1998, the Children's Online Privacy Protection Act (COPPA) was passed. COPPA was designed to protect the privacy of children who use the Internet - certain commercial websites were to obtain parental consent before collecting, using, or disclosing personal information from children under the age of 13.[53]

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[50] Donald Lively, "The Information Superhighway: A First Amendment Roadmap," *Boston College Law Review* 35 (1994), 1066.

[51] Don R. Pember, *Mass Media Law* (Boston: McGraw-Hill, 2001),120.

[52] Peter T. Holsen, "ICANN'T do it Alone: The Internet Corporation for Assigned Names and Numbers and Content-based Problems on the Internet," *Marquette Intellectual Property Law Review 6* (2002), 5.

Yet, once again the government's attempt to protect children from harmful material and protect their privacy, COPPA, was struck down. And once again, they came back with another piece of legislation: The Children's Internet Protection Act (2000). CIPA was enacted by Congress to address concerns about access in schools and libraries to the Internet and other information. But on May 31, 2002, CIPA was ruled unconstitutional in a unanimous vote by a federal court in Philadelphia. An appeal was filed (*U. S. v. American Library Association*) and the U. S. Supreme Court announced on November 12, 2002, that it will decide if public libraries can be forced to install software blocking sexually explicit websites.[54]

The private sector will come to the aid of protecting children by providing filtering software and parental controls. This could be a simple method for applying "zoning" to the Internet. If ICANN were to label adult-oriented material with specific domain names, Internet users could easily identify the site and then filter accordingly, if they wish. Internet Service Providers are currently installing parental controls or filters. In fact, these filters have become a huge marketing tool in advertising campaigns, a major selling point. If these types of controls are placed into the hardware instead of the software, then the filter should operate as the V-chip does on recently manufactured television sets- with an on/off switch. This method is less intrusive than previously proposed legislation.

Conclusion

The heaviest burden of protecting children should not fall on the government, but on the parents or guardians. The government's role should focus on helping parents shield their children from indecent and obscene material on the Internet. The courts may ultimately decide how to regulate the Internet, if at all, since many Congressional attempts have been struck down by the courts.

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[53] Jennifer Batchelor, "High Court agrees to Review Filtering-Software Challenge," *The Legal Intelligencer 227* (November 13, 2002), 3.
[54] Id.

Imposing a national community standard could hinder the rights of many adults. If the courts have to adhere to the most conservative communities, then those standards would be determined by the lowest common denominator – a frightening thought for many First Amendment theorists. Since some legislation has been rewritten to comply with changing technology, i.e. cable television, cellular phone use, etc., perhaps it is time to update the *Miller* test for obscenity and keep our cherished freedom of speech alive. Technology should be freeing, not impeding.

Jung-Sook Lee Competition

Running Head: Determinants of Instant Messaging Use

Determinants of Instant Messaging Use

by

Namkee Park

Doctoral Student
Annenberg School for Communication
University of Southern California

3502 Watt Way
Los Angeles, CA 90089

Phone: 213-740-3939
Email: npark@usc.edu

- Submitted to the Communication Technology and Policy Division of Association for Education in Journalism and Mass Communication.

ABSTRACT

Instant messaging is a technological innovation featuring near-real-time communication and interactivity between users, which also exhibits network effects in its diffusion. This study identifies a profile of instant messaging users and empirically tests the prediction of network effects. The study results indicate that technological innovativeness is the only significant factor in predicting instant messaging use. It was also found that network effects play a critical role for the users to choose a specific service.

Jung-Sook Lee Competition

Determinants of Instant Messaging Use

Among a variety of the Internet applications, instant messaging (IM) has been a powerful form of communication and one of the most popular applications on the Internet. Instant messaging is "a text-based means of near-real-time communication between users," with text messages popping up immediately on a recipient's computer screen, and it allows the users to maintain a list of people that they wish to interact with (Faulhaber, 2002, p.314). The users can send messages to any of the people in the list, often called a "buddy list" or "contact list," as long as that person is online. Instant messaging differs from e-mail in that it is a true conversation, "operating in synchronous rather than asynchronous mode" (Faulhaber, 2002, p.314).

According to a recent Nielsen/NetRatings survey, more than 41 million, or nearly 40% of the active Internet surfing population at home, used at least one of instant messaging services during the month of May 2002. In addition, nearly 12.6 million office workers used instant messaging during the same time period, reaching 31% of the total active Internet population at work[1] (PR Newswire, 2002a). Another survey says that almost 74% of young people, roughly 13 million, have used an instant messaging program while 44% of online adults have tried instant messaging at one time or another (Lenhart, Rainie, & Lewis, 2001). In fact, instant messaging has seen phenomenal growth, especially for young people. Statistics show that college students access the Internet and utilize instant messaging programs more than the overall US population. According to a survey from the Pew Internet & American Life Project, college students are among the heaviest users of instant messaging in the US. While only half of all Internet users have sent instant messages, nearly three quarters of college Internet users have done so. College

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[1] Media Metrix reports that nearly 72.9 million users in the US used instant messaging services during the same time period (Beckwith, 2002). Although there exists discrepancy between data, it is true that the number of people using instant messaging is rapidly increasing.

Internet users are twice as likely as the average Internet users to use instant messaging on any given day (Jones, et al., 2002). Thus, a private research firm even predicts that instant messaging will be used more often than email by 2005 (Henry, 2002). In this regard, the purpose of this study is to understand the adoption and usage of instant messaging by identifying a profile of the users among college students along with implication of the characteristic of network effects in the use of instant messaging.

Instant Messaging and Interoperability

It was in the mid-1990s when instant messaging was really exploded on the Internet scene. ICQ, short for "I seek you," was created by four Israeli programmers to improve the way people communicate with each other over the Internet and within the first six months more than a million users registered (Barken, 2002). Almost at the same time, America Online (AOL) pioneered instant messaging with adding its chat function and the "buddy list,"—a quick way for users to check if their friends or the people they want to interact with were online—although the company had introduced an earlier form of instant messaging to its customers in 1989. In 1999, several companies such as Microsoft, Yahoo!, Otigo, and Tribal Voice established other instant messaging services (Faulhaber, 2002), but currently four services, AOL Instant Messenger (AIM), MSN Messenger, Yahoo! Messenger, and ICQ, are competing with each other to attract more subscribers.[2] As of May 2002, AOL Instant Messenger has about 22.1 million subscribers (21%), MSN Messenger about 15.7 million subscribers (15%), Yahoo! Messenger about 12.4 million subscribers (12%), and ICQ has 4.4 million subscribers (4%) in the US, according to Nielsen/NetRatings data[3] (PR Newswire, 2002a).

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[2] Although America Online acquired ICQ in 1998, the company has operated it as a separate business (Vise, 2002).

[3] Media Metrix, however, reports that AOL IM has 31.4 million subscribers, MSN Messenger 29.1 million subscribers, Yahoo! Messenger 19.1 million subscribers, and ICQ has 8.1 million subscribers, as of April 2002 (Emling, 2002).

However, unlike e-mail services, none of these services are compatible with each other and each service relies on a proprietary network with isolated user communities. Since America Online has dominated instant messaging service with a first-mover advantage, the company has refused to open its network to other service providers indicating safety and security problem and technical matters as the company's legitimate argument.[4] In particular, for the past three years, America Online has been intermittently blocking its rivals' attempts to send messages to its tens of millions of users (Schofield, 2002). It means that a user of AOL Instant Messenger cannot reach a user of MSN Messenger as well as a user of Yahoo! Messenger cannot talk with a friend who has an account in AOL IM. Because each instant messaging service cannot be interoperable, about 25% of instant messaging users have accounts with more than one service (Emling, 2002).

Despite this non-interoperability, the number of instant messaging users has increased due to its attractive function of quick sending and receiving messages back and forth. Not only is it quick, but also the users can control his/her own buddy list, or those authorized to send them a message, and therefore can lock out spam (Faletra, 2002). Another major advantage of instant messaging is that it enables users to be able to stay in touch with their friends or relatives who live outside their communities. Although it does not contain the visual and aural cues that people get in face-to-face communication or phone contacts, talking to buddies online has become a modern communication method with which users make interpersonal communication a more valuable activity through immediate interactions beyond geographical boundaries. These attributes of instant messaging have helped it become popular and widespread among the Internet users. Moreover, other companies than America Online have been trying to attract users with different strategies focusing on utilizing their own advantages, and thus accelerating the diffusion of instant messaging even without interoperability. For instance, MSN has increasingly tied instant messaging into its operating system. Its Windows Messenger service is a central feature in Window XP and is interoperable with its Web-based product MSN Messenger (Hu, 2002). In addition, MSN has tried to include video conferencing as another key feature (Wilcox, 2001). Yahoo! also has continued to support efforts towards functional interoperability with its Web portal (Hu, 2002), and recently had a contract with AT&T Wireless through which Yahoo! Messenger users on personal computers can exchange instant messages with AT&T Wireless subscribers, even if the mobile user does not have a Yahoo! ID (PR Newswire, 2002b). These efforts of MSN and Yahoo! have given them tremendous growth in their instant messaging services over the past two to three years, although non-interoperability may limit their abilities to lock in users and market other services and products (Hu, 2002).

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[4] This interoperability issue was a condition of the merger between America Online and Time Warner in 2001. The Federal Communication Commission (FCC) approved the merger mandating interoperability for future generations of the AOL's instant messaging service. But, the present text-based service may not be applied to this condition. For more details, see Faulhaber (2002).

Instant messaging is still in the stage of development in terms of widening its user base. Thus, the prominent importance of instant messaging to both users and the service providers requires more research. In particular, an understanding of users and non-users of instant messaging in the stages of adoption may speed up diffusion of the relatively new interactive communication service. Based on these characteristics of instant messaging, the research questions on which this study focuses are as follows:

RQ 1: What factors are most important in determining whether users choose to be adopters of instant messaging?

RQ 2: What is the most important factor in selecting a specific service among various kinds of available services if the users determined to use an instant messaging service?

Diffusion Theory

This study assumes that instant messaging is an innovative interactive technology in the era of Internet communication and uses diffusion theory as its theoretical framework. Broadly speaking, diffusion theory addresses the characteristics of innovations and those who adopt them (Atkin, Jeffres, & Neuendorf, 1998). According to diffusion theory (Rogers, 1995), adoption of technological innovations is a function of people's social locators, media use patterns, uses of other technologies, and peoples' communication needs. Another important concept is innovativeness, which Rogers (1995) defines as "the degree to which an individual is relatively earlier in adopting an innovation than other members of a social system" (p.22). Put differently, the characteristics of earlier adopters may be different from later adopters or non-adopters because of the degree of their adoptive innovativeness. Thus, if we consider instant messaging as an "innovation," diffusion theory may offer clues about who are relatively early to adopt it and what their characteristics are.

Demographics

Several studies of the diffusion theory indicate that demographic variables are associated with new technology adoption and use behaviors. This argument has been supported by a variety of diffusion research about personal computers (Dickerson & Gentry, 1983; Dutton, Rogers, & Jun, 1987; Lin, 1998), the Internet (Atkin, Jeffres, & Neuendorf, 1998), HDTV (Dupagne, 1999), and VCRs (Krugman, 1985; Reagan, 1987). These studies find that the adopters of new technologies tend to be upscale, better educated, and younger than non-adopters as Rogers (1995) suggests. Also, although Rogers (1995) does not mention gender difference in adopting a new technology, some works find that males are more likely to adopt new technologies (e.g., Krendl, Brohier, & Fleetwood, 1989; Dupagne 1999).

A number of research, however, find that demographic differences between adopters and non-adopters of new technologies have been few. For example, Jeffres and Atkin (1996) discovered that income and education had only a weak relationship with interest in adopting specific Internet utilities. Kang (2002) also found that no demographic variables had a significant impact on people's subscription to digital cable. Neuendorf, Atkin and Jeffres (1998) found no significant demographic variable in the adoption of audiotext audio information services and Atkin and LaRose (1994) presented a similar result in the adoption of cable service. In terms of gender difference, many empirical studies suggest that gender is not related to communication technology adoption (Collins, Reagan, & Abel, 1983; Lin, 1998; Reagan, 1987). Even further, Cummings and Kraut (2002) present that females are using the Internet more than males for communication as the usage of the Internet has become matured. Considering the contrasting findings, this study tests the following hypothesis regarding demographics:[5]

H1: There will be differences between users and non-users of instant messaging in terms of age, gender, and disposable income per month.

Media Use

Diffusion theory suggests that earlier adopters will use media or communication technologies more heavily than later adopters (Rogers, 1995). But, in fact, this assumption has been rarely supported in the literature (Dupagne, 1999). Rather, the media substitution hypothesis (Krugman, 1985; Lin 1994a) holds that the introduction of a new technology encourages a reorganizing in the way people use established technologies. For instance, Vitalari, Venkatesh and Gronhaug (1985) found that computer adopters spent less time with television and participated in fewer recreational activities. Similarly, James, Wotring and Forrest (1995) found that the use of electronic bulletin boards reduced time spent with television viewing, book reading and telephone use.

In contrast, in terms of potential videotext news bulletin adoption, newspaper reading level was found to have no effect on readers' intention to adoption (Heikinnen & Reese, 1986). In the same fashion, Lin (1994b) found a similar pattern of non-effects for videotext use on other media. Jeffres and Atkin (1996) also discovered the use of online services was generally not consistently related to use of other media technologies. Considering these contrasting findings, the following hypothesis was set forth.

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[5] Considering the sample of this study, which is from college students, I assume that there is no difference in education. Also, disposable income per month was used as a substitute for income. For more details, see "Method" section.

H2: Media use levels (i.e., television viewing, radio listening, newspaper and magazine reading, and moviegoing) of instant messaging users will be lower than those of non-users.

Communication Technology Clusters

According to Rogers (1995), "all technology cluster consists of one or more distinguishable elements of technology that are perceived as being closely interrelated" (p.15). It suggests that the adoption of one technology is likely to stimulate the use of functionally similar technologies (Atkin & LaRose, 1994; LaRose and Atkin, 1992). Reagan (1987), for instance, found that adoption of communication technologies was powerfully related to adoption of other technologies; such as videotext, personal computers, compact disks and cable. Lin (1998) also noted that computer adoption was related to Internet adoption intentions as well as a technology adoption index (comprised of 14 communication technologies). Neuendorf, Atkin and Jeffres (1998) applied Rogers' notion of technology clusters to the adoption of audiotext information services, suggesting that use of the audiotext was related to functionally similar technologies such as videotext, ATMs, and 800 numbers. Therefore, a positive relationship is expected between ownership of communication technology products and the use of instant messaging.

H3: Instant messaging users will have more communication technology products than will non-users.

Communication Needs

Research on communication technology adoption indicates that users' needs are primary determining factors (Neuendorf, Atkin, & Jeffres, 1998). In their investigation of primary motives for using the Internet, Papacharissi and Rubin (2000) found that the most salient use of the Internet reflected an instrumental orientation, which has been defined as "an active and purposive orientation, often having to do with information seeking, and characterized by utility, intention, selectivity, and involvement" (p.181). As Lin (1994a) suggests, these motives represent a fundamental psychological element. Also, a number of literature indicated that users' needs or use patterns were more powerful than demographics in explaining the adoption of the Internet (James, Wotring, & Harris, 1995), computers (Perse & Courtwright, 1993), videotext (Reagan, 1987; Lin, 1994b), audio information services (LaRose & Atkin, 1992; Neuendorf, Atkin, & Jeffres, 1998), cable (LaRose & Atkin, 1988; Reagan, 1991; Jacobs, 1995), and ISDN (Jeffres & Atkin, 1996). Thus, the following hypotheses were posed:

H4: Instant messaging users will present a greater desire to accomplish communication needs than will non-users.

H5: Use of instant messaging will be more powerfully explained by personal communication needs than by demographic variables.

Innovativeness

According to diffusion theory (Rogers, 1995), technological innovation adoption is associated with one's innovative traits to try to new products. In fact, the causes of innovativeness have their psychological roots in an individual's novelty-seeking motives (Hirshman, 1980) and these roots of innovativeness include personality styles such as venturesomeness and communication usage patterns (Foxall & Bhate, 1991). Based on this understanding, Lin (1998) reported that computer adopter groups presented the highest degree of need for innovativeness (e.g., willingness to learn new ideas, willingness to explore new technology, and keeping up with new technology) compared with likely-adopters or non-adopters. The following hypothesis deals with people's innovativeness in the adoption of instant messaging.

H6: Instant messaging users will perceive themselves to be more innovative than will non-users.

Network Effects

For interactive communication technologies that are new, and that are thus perceived as an innovation, their adoption sometimes depends on the perceived number of others who already adopted the innovation (Mahler & Rogers, 1999). When the value of a product or service to one user depends on how many other users there are, this product or service exhibits *network effects* or *network externalities*,[6] which sometimes referred to as "demand-side economies of scale" (Shapiro & Varian, 1999, p.14). Instant messaging is a perfect example of network effects in the sense that the value of it can be enhanced as the number of users increases. Thus, as mentioned above, if the instant messaging services are not interoperable with each other, the leading service, AOL Instant Messenger, is likely to attract more users because the service becomes more valuable to all users with a network effect.[7] Thus, it seems reasonable that network effects can account for the changes in instant messaging adoption and provide more predictive power and guidance. With this reasoning, the present study tries to empirically prove network effects in instant messaging.

In the early stages of the diffusion of an interactive innovation, the rate of adoption may proceed very slowly. But eventually enough adopters are reached when many individuals perceive that "everybody is doing it" (Mahler & Rogers, 1999, p.721). At this point the pool of innovative technology users has reached *critical mass*[8] and an individual considering adoption of the innovation perceives that the innovation would have sufficient utility to justify its adoption (Mahler & Rogers, 1999). Thus, achieving critical mass in an innovation is a turning point from which the innovation can be widespread with network effects.

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[6] For more detailed economic description of network effects, see Pindyck and Rubinfeld (2000) Ch. 4, and for a review of the extensive literature on network effects, see Katz and Shapiro (1994).

[7] In contrast, mobile phone does not exhibit a network effect although it is an interactive innovation, because mobile phone adopters can connect to the existing base of all telephone users (Mahler & Rogers, 1999).

[8] Critical mass can be defined as "the minimal number of adopters of an interactive innovation for the future rate of adoption to be self-sustaining" (Mahler & Rogers, 1999, p.721).

Innovations characterized by network effects often have a winner-take-all result, with all potential users leaning toward a single product or service provider (Cummings & Kraut, 2002; Markus, 1987) and the users of other products or services are likely to transfer to the leading product or service due to the large user base. Thus, theoretically, if a dominant provider, America Online in this study, chooses not to interconnect, other competitors may be driven from the market. Then new entrants or smaller competitors can face a significant barrier to entry and the leading provider may enjoy monopoly (or near-monopoly) status.[9] A monopoly based on network effects may be especially difficult to overcome, even with a superior product or service (Faulhaber, 2002).

As Shapiro and Varian (1999) and Mahler and Rogers (1999) properly pointed out, however, users' *expectations* or *perceived* number of other adopters are more crucial to reach critical mass or to become the leading provider in an interactive innovation. The service that is expected to become the standard will eventually become the standard (Shapiro & Varian, 1999). Also, the critical mass is socially constructed by individuals, based on their communication with relevant others (Mahler & Rogers, 1999).

Nevertheless, it is hard to say that users' choice of a specific service is determined by a single factor. Although this study assumes that network effects are critical in choosing an instant messaging service, there can be other factors that influence users' choice. According to consumer research literature, consumer choices concerning the selection or consumption of products and services can often be difficult and important to the consumer, to marketers, and even to policy makers (Bettman, Luce, & Payne, 1998). Thus, consumers usually compare several different brands before deciding which option to purchase (e.g. Dhar, Nowlis, & Sherman, 1999). Consumers at times compare products or services in order to make judgments of similarity that are basic to categorization, generalization, and discrimination (Nosofsky, 1986; Tversky, 1977). It is likely that the users of communication technologies judge similarity or dissimilarity when they come across a new innovation, instant messaging. In this study, three factors, user satisfaction with functions and features of instant messaging services, connectedness to others Internet services, and company image, were employed as the alternative factors to network effects.

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[9] This is the very reason why America Online has refused to open its network of instant messaging to competitors and the Federal Trade Commission (FTC) and the Federal Communication Commission (FCC) were concerned about the merger between America Online and Time Warner.

Given the similarity of functions of instant messaging services, feature or layout of instant messaging services will more attract users, especially fancy-driven young users. Even though all instant messaging services have similar features as well as functions, appealing to consumers' cognitive mechanisms with unique features has been a focal point for marketers to construct users' preference (Dhar, Nowlis, & Sherman, 1999). Another factor, connectedness to other Internet or communication services, is currently a major marketing strategy for MSN and Yahoo!, as mentioned above. Convenient connection to other services such as email, Web browsing, portal and directory service, and wireless connection of the service provider with an instant messaging service, usually called "one-stop shopping," can attract more instant messaging users in establishing a large user base. Finally, company image is related to brand loyalty. A company that is perceived as the "brand-as-partner" to users and provides the same identity with users makes the users consistently be loyal to the company's services and feel user-brand bonds (Fournier, 1998). Considering that all instant messaging service providers are innovative technology-oriented, company image may be a corollary of users' innovativeness in the sense that company image can be connected to users' innovativeness in selection of a service. Keeping in mind these alternative factors, the following hypothesis was posed.

H7: Instant messaging adopters' selection of a specific service will be more explained by the perceived number of existing users than by user satisfaction, connectedness to other services, and company image.

Method

Data Collection

This study conducted a survey using self-administered questionnaire in a large private research university in the West Coast area from February 24 to March 7, 2003. A convenient sample of respondents was 168 Communication and Political Science undergraduate students who were attending introductory classes in each department. Although it is not a representative sample for the overall population, it might be appropriate for this study considering college students' heavier use of instant messaging than others.

Questionnaire Design

The questionnaire focused on three dependent variables, whether or not the respondents use instant messaging, adoption rate, and which service they (primarily) have been using, and five independent variables for investigating use and adoption of instant messaging, (a) demographics, (b) media use, (c) technology clusters, (d) communication needs, (e) innovative attitude, as well as four independent variables for examining network effects, (f) the perceived number of other users, (g) user satisfaction toward functions and features, (h) connectedness to other services, and (i) company image.

Instant messaging use: There are two categories of instant messaging adopters, users and non-users. Users were asked to report their use of instant messaging. The dependent measure of use of instant messaging used the following phrasing: "In the last week, how many times did you use instant messaging?" and "In the last week, how many hours did you use instant messaging?" The metric value of each respondent's answer was retained.

Adoption rate: The concept of adoption rate was constructed based on Rogers' (1995) categorization. Rogers specified people's technology adoption types as follows: "innovators" (2.5%), "early adopters" (13.5%), "early majority" (34%), "late majority" (34%), and "laggards"

(16%) along a time dimension. Using this timeline, an adoption rate was developed and this dependent variable was operationally measured by obtaining respondent answers to the question, "How long have you been a user of instant messaging service?" The responses were coded with 8 categories, from 0 (non-user) to 7 (over 5 years).[10] Thus, this dependent variable assesses the speed of user adoption with respect to instant messaging.

Specific instant messaging service: Users were asked what kind of instant messaging service they have been using (i.e., AIM, MSN, Yahoo!, ICQ or other). If they use more than one service, they were asked to designate a primary service.

Demographics: To obtain demographic data, respondents were asked about their age, gender, and disposable income per month. Ratio scale was used for age (years); gender was dummy coded; ordinal scales were used to measure disposable income per month, ranging from 1(less than $100) to 6 (over $901). Considering that respondents are college students and attending a private university, it was hard to measure their income directly. Thus, disposable income per month was used as a substitute.

Media use: Respondents were asked to report the number of hours they spent watching television, listening to radio, and reading a newspaper daily, in addition to the number of times they read magazines on a weekly basis. Frequency of moviegoing in a month was also asked.

Technology clusters: Respondents were asked whether they own or subscribe to any of a list of ten communication technology products. They include personal computer, broadband access, PDA, cell phone, video game player, DVD player, digital camera, video camera, cable television subscription, and DBS subscription. These ten items were coded as dummy variables (0=no, 1=yes). The number of items owned was then summed to reflect the extent of each respondent's technology ownership.

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[10] This timeframe was constructed considering that America Online, the leader in instant messaging service, introduced the "buddy list" in 1996, thereafter instant messaging became popular rapidly, and the company allowed for non-AOL subscribers to free-download AIM as a stand-alone package in 1997.

Communication needs: With regard to operationalizations of communication needs, respondents were asked how much they agreed or disagreed with three statements. They were told to respond on a scale of 1 to 7, where 1 means strong disagreement, 7 means strong agreement, and 4 is neutral. The need for engaging in interpersonal communication was measured with the following statements:[11] "I spend a lot of time talking with friends and associates about things I find interesting, like hobbies, personal interests, or current issues," "I often feel the need to express myself to others," and "If there was some way I could send a message to others, I would do it regularly" (Cronbach's $\alpha = .71$).

Innovative attitude: Respondents' attitude about their own innovativeness was measured by asking the following questions: "On a scale of 1 to 7 where 1 means not technically progressive at all, or low tech, and 7 means very technically progressive, or high tech, how would you rate yourself?"[12] "I enjoy trying out new technologies and like to introduce them to my friends or colleagues," and "I consider myself a modern person who is usually up-to-date on new technologies."[13] Again, they were told to respond on a scale of 1 to 7, where 1 means strong disagreement, 7 means strong agreement, and 4 is neutral, in the second and the third statements (Cronbach's $\alpha = .88$).

Network effects: With regard to operationalizations of network effects, users were asked how much they agreed or disagreed with the following statement: "I think the instant messaging service which I'm currently using has the largest number of users among instant messaging services." They were told to respond on a scale of 1 to 7, where 1 means strong disagreement, 7 means strong agreement, and 4 is neutral.

User satisfaction: User satisfaction toward functions and feature of instant messaging services was measured by asking four questions of how much users like and satisfy with the functions and features of the instant messaging service they are (primarily) using. A 4-point Likert scale ranging from 1 (not at all) to 4 (very much) was used for the questions (Cronbach's $\alpha = .92$).

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[11] These statements were used in Jeffres and Atkin (1996) and Atkin, Jeffres and Neuendorf (1998). This study employed revised forms of the statements.

[12] This statement was used in Kang (2002).

[13] These statements were used in Jeffres and Atkin (1996) and Atkin, Jeffres and Neuendorf (1998).

Connectedness to other services: Connectedness to other services was measured by asking how regularly users of an instant messaging service are using the email, Web browsing, directory service of the instant messaging provider. A 4-point Likert scale ranging from 1 (never) to 4 (always) was used for each service (Cronbach's $\alpha = .74$).

Company image: Users' perception about the image of the company they are using an instant messaging was measured by asking the following questions: "On a scale of 1 to 7 where 1 means very bad image and 7 means very good image, how would you rate the image of the company you are using the (primary) instant messaging service?" and "On a scale of 1 to 7 where 1 means not technically innovative at all and 7 means very technically innovative, how would you rate the company you are using the (primary) instant messaging service?" (Cronbach's alpha $\alpha = .72$).

Data Analysis

To test the study's hypotheses with respect to instant messaging use and choice of a specific service, logistic hierarchical regression analyses were performed because the dependent variables are categorical. Also, hierarchical multiple regression was used to assess the relative influence of the independent variables in predicting respondents' adoption rate. In order to screen potential mulitcollinearity problems with the predictor variables for the predictive equation involving adoption rate, Pearson's correlation coefficients were computed for all independent variables. The highest intercorrelation among the independent variable was .37, suggesting that serious multicollinearity problems probably did not exist with respect to the estimated regression model.

Results

Descriptive Results

The sample was 42.3% male and 57.7% female students. The mean age of the sample was 20.15 (*SD* = 1.90) and the median disposable income per month was in the category of $200 to $400. Of all respondents, 79.8% has used at least one of instant messaging services and among the non-users, 23.5% planned to use a service in the near future. The median hours of instant messaging use per week was 4 and half hours and 41.4% of the users have used instant messaging over 5 years.

Among the users 78.4% has used AOL IM for their instant messaging service or as their primary service in case they use multiple services. In addition, 43.3% of the users have been using more than one instant messaging service.

Logistic Hierarchical Regression – Users of Instant Messaging

The result by logistic hierarchical regression for the users of instant messaging is presented in Table 1. The logistic hierarchical regression examined the relative influence of demographics, media use, ownership of technology products, communication needs, and technological innovativeness in predicting instant messaging use. Demographics (age, gender, and disposable income) were entered first, followed by media use (television viewing, radio listening, newspaper and magazine reading, and moviegoing), ownership of technology clusters, communication needs, and technological innovativeness. The Wald statistic, the equivalent of the *t* test in linear regression, was used to determine the statistical significance of the regression coefficients (Knoke, Bohrnstedt, & Mee, 2002). The improvement chi-square (χ^2) test, which is comparable to an *F*-change test in linear regression, tested the null hypothesis that coefficients for the variables added at each step of the regression were 0 (Dupagne, 1999).

Table 1. Logistic Hierarchical Regression: Instant Messaging Users vs. Non-Users

Predictors	*Step Entered*	*Improvement* χ^2 *Test*	*-2 Log Likelihood*	*B*
Age	1	2.035	167.20	-.118
Gender	2	2.385	164.82	.459
Disposable income	3	.003	164.82	-.175
Media use	4	.021	164.79	-.003
Technology cluster	5	7.531**	157.26	.173
Communication needs	6	4.239*	153.02	.248
Innovativeness	7	14.630***	138.39	.774***

*p<.05. **p<.01. ***p<.001.

According to Table 1, no demographic variables were found to have a significant impact on whether respondents chose to use instant messaging. In other words, the users of instant messaging were not significantly different from non-users in terms of age, gender, and disposable income. Thus, H1 was not supported.

Contrary to expectations, none of media use, technology cluster, and communication needs was found to have a significant influence on the instant messaging use. Interestingly, however, media use was negatively related to whether respondents use instant messaging, although the relationship was not significant. Therefore, H2 to H5 were not supported. The only significant variable in this analysis was innovativeness towards new technologies (p<.001), which supported H6, indicating that those who use instant messaging are more likely to have innovative attitude accepting and using new technologies. According to this model, the percentage of classification accuracy was 82.7%.

Hierarchical Regression – Adoptive Innovativeness Results

Table 2 provides the relative influence of each variable in predicting adoptive innovativeness (i.e., the speed of user adoption) with respect to instant messaging. The regression model estimate yielded two significant predictors regarding adoptive innovativeness: innovativeness (= .302) and technology ownership (= .175). The findings suggest that users who have innovative attitude towards new technologies and who have more technology products will adopt instant messaging service earlier than other users. Surprisingly, no other variables made a significant contribution to the variance explained. A total of 18.2% of the variance was explained after all of the predictor variables were entered into the regression equation, *F*(7, 160) = 5.072, p<.001.

Table 2. Hierarchical Multiple Regression: Predictors of Adoptive Innovativeness

Predictors	*Step Entered*	*R*	R^2	R^2 *Change*	β
Age	1	.098	.010	.010	-.072
Gender	2	.134	.018	.008	.021
Disposable income	3	.158	.025	.007	-.022
Media use	4	.161	.026	.001	-.030
Technology ownership	5	.311	.097	.071**	.175*
Communication needs	6	.331	.109	.012**	.047
Innovativeness	7	.426	.182	.073***	.302***

$^*p<.05$. $^{**}p<.01$. $^{***}p<.001$.

Logistic Hierarchical Regression – Network Effects Results

The logistic hierarchical regression uncovered that the perceived number of other users, connectedness to other Internet services, and innovative attitude, which was included and significant in the first logistic regression, were all significant predictors of choosing AOL IM as the users' instant messaging service (or their primary service) as shown in Table 3. Interestingly, however, the predictor of connectedness to other service is negatively associated with the users' choice of AOL IM. It means that the users of AOL IM do not heavily use other AOL services although they use AOL IM. Among the significant predictors, the perceived number of other users was the strongest in predicting the users' choice of a specific instant messaging service, which support H7. In addition, the percentage of classification accuracy was 85.1%.

Table 3. Logistic Hierarchical Regression: AOL IM Users vs. Non-AOL IM Users

Predictors	*Step Entered*	*Improvement χ^2 Test*	*-2 Log Likelihood*	*β*
Innovative attitude	1	7.511**	132.48	.785**
Perceived number of other users	2	34.386***	98.09	1.068***
User satisfaction	3	.519	97.57	.554
Connectedness to other services	4	13.622***	83.95	-.943**
Company image	5	.037	83.91	-.127

*$p<.05$. **$p<.01$. ***$p<.001$.

Discussion

This study profiled instant messaging users by comparing instant messaging users to non-users in terms of demographics, media use, technology ownership, communication needs, and innovative attitude towards new technologies. The findings, however, only partly support hypotheses derived from diffusion theory and from earlier empirical studies, which have attempted to empirically test diffusion theory's application to new technologies innovation. No significant impact of demographics on instant messaging use can be explained by the fact that college students may have similar characteristics in terms of social locators. Surprisingly enough, however, communication needs were found not to have a significant impact on the usage of instant messaging in this study. In particular, because communication needs are considered to be the primary determining factor in communication technology adoption (Neuendorf, Atkin, & Jeffres, 1998) as well as fundamental psychological elements in information seeking (Lin, 1994a), the finding that communication needs were not related to instant messaging use is unusual. Perhaps because currently almost three quarters of young people have already been active users of instant messaging (Lenhart, Rainie, & Lewis, 2001) as described earlier, respondents' communication needs are less relevant as a decision factor with respect to instant messaging use. It is also possible that innovative attitude may dominate other variables in predicting instant messaging use especially for college students considering they are likely to have similar characteristics in terms of innovative technology adoption. As Lin (1998) noted, high degree of innovativeness was the compelling factor in comparing adopters and non-adopters for a new technology adoption.

As for the communication technologies ownership, this study partly confirmed that past findings that early adoption of communication technologies was related to adoption of other similar technologies (Atkin & LaRose, 1994; Reagan, 1987; Lin, 1998; Neuendorf, Atkin, & Jeffres, 1998). It is perceivable, however, that the impact of technology ownership may be diminished due to relative easier access to the Internet in campus although it was a significant factor in the early stage of instant messaging diffusion. It can explain that technology ownership was a significant factor in predicting adoption rate while it was not in instant messaging use. As a theoretical finding, the results of this study propose that once an innovative communication technology has been widely used or achieved critical mass, communication needs may not play a critical role in predicting its use. Rather, innovative attitude can be the decision factor in adopting the technology, as reported here.

The results associated with network effects were more interesting. Consistent with network effects' prediction, results of this study indicate a high likelihood of AOL's dominance in instant messaging market and empirically support the theoretical explication. Given the importance of the critical mass in explaining the adoption of interactive innovations, AOL IM may become of increased utility to the users, who use instant messaging to communicate with more and more others. However, not most important but noticeable result is that the association between the users' choice of AOL IM and connectedness to other Internet services was negatively related, meaning that AOL's lead in instant messaging does not guarantee the company's control in other services, which can give room for other competitors. It also proves that the business models of MSN or Yahoo! to overcome AOL's refusal to interoperability are empirically meaningful. Thus, efforts of MSN and Yahoo! should be more focused on developing related services with instant messaging in the future, in which the next generation of instant messaging will appeal the users with a rich array of content from a wide variety of sources beyond the current text-based one such as music and video streaming or video conferencing in the broadband environment.

The results of this study also have implication for policymakers. This study suggests that interoperability is essential for the users of instant messaging to fully appreciate the innovative communication technology whatever logic the leader in the marketplace employs. As reported earlier, 43.3% of instant messaging users have been using more than one service due to the non-interoperability between the services. Policymakers need to specify future plan in the deployment of the next generation instant messaging,[14] which will enhance the users' welfare with respect to easier and richer communication access as well as promoting fair competition among the service providers.

Limitations and Future Research

As already noted, the sample used in this study was from a single university. The percentage of instant messaging use was somewhat high compared to a national sample and market share of each service provider was quite different from the result of this study, which can reduce external validity of this study. Also, the relative low scale reliability among the variables of communication needs may weaken their predicting power. Furthermore, this study utilized a limited number of predictive variables, which accounted for only 18.2% of the total variance explaining instant messaging adoption. Future research should use a more representative sample and include more potential predictors such as computer competence or individual communication pattern to provide a fuller explanation of the factors accounting for instant messaging use. In addition, regarding the influence of network effects, future study may employ a more elaborated model to understand the relationship between the perceived number and actual number of other users and its impact on the users' choice of a specific service provider.

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[14] The conditions regarding the next generation instant messaging were not clearly determined at the time of the merger between AOL and Time Warner. For more details, see Faulhaber (2002).

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Conceptualizing the Convergence Craze:
A Three-Dimensional Model of Multimedia Curriculum Reform

By George L. Daniels, Ph.D.
Assistant Professor
Department of Journalism
The University of Alabama
Box 870172
Tuscaloosa, AL 35487-0172

gdaniels@ccom.ua.edu

Presented to
Association for Education in Journalism and Mass Communication
Annual Convention
Communication Technology and Policy Division
Kansas City, MO
July 30-August 2, 2002

Conceptualizing the Convergence Craze: A Three-Dimensional Model of Multimedia Curriculum Reform

ABSTRACT

These days convergence consumes a great deal of discussion at gatherings of those in the media industry and in journalism and mass communication education. The blurring of the lines between what have historically been distinct areas of study (i.e. broadcast and print journalism) produces what is known as the "converged" curriculum. This paper offers a model for curriculum reform that incorporates a program's philosophy of convergence, stages of curriculum reform as well as perceptions and predictors of curriculum reform.

Long before most of the present-day mass communication programs came into existence, scholars and those in the media industry debated the role institutions of higher learning should have in preparing mass communicators. Some 70 years ago, a New York Times editorial called for teachers to become acquainted with the "special technique" for broadcasting in order that students be properly prepared ("Teaching a new art: Colleges offer courses in broadcast speech and microphone technique," 1933). At the time, radio was the "new art" for which colleges and universities were being called on to train future workers. More recently, both broadcasting departments and journalism departments have engaged in discussions on the role of the computer, or lack thereof, in mass communication programs. Such discussions in the 80s and early 1990s gave way to spirited dialogue within the last five years about a thing called convergence, which itself means different things to different people. To most journalism and mass communication educators, convergence has meant a blurring of the lines between what have historically been distinct areas of study (i.e. broadcast and print journalism), the outcome of which is a "converged" curriculum.

An article in *Editor & Publisher* Magazine seven years ago outlined the challenge facing journalism and mass communication (JMC) programs: creating new curricula for training "a new breed of journalists who need to be armed with a mix of skills and abilities tailored for a journalist being transformed by technology into an unchartered world of interactive media" (Yovovich, 1996). Three years later, the same publication spotlighted the University of Kansas' convergence experiment as a "model for commercial publishers" as they look to redesigning their operations to support publishing for multiple media (Outing, 1999) Then last summer, the Society of Professional Journalists membership publication, *Quill*, ran a journalism education cover story asking "What will they need?" The image of the student on the cover with a backpack filled with broadcast equipment, a reporter's notebook, and a computer reflects the uncertainty on the part of many in industry and in academe about exactly what the media student of the future will need to be successful. In the midst of this uncertainty, a new study published this spring found a highly touted convergence model in Tampa, Florida was little more than cross-promotion and the departure in the work roles and work flows that were supposed to happen with convergence have been miniscule (Flanagan & Hardenbergh, 2003).

Among the questions that remain unanswered: where are those sounding the alarm about the need to prepare the multimedia or converged journalist getting their information? Moreover, how are the programs reforming their curriculum proceeding through the arduous task? What are the biggest barriers to making such a curriculum a reality? Are some JMC programs more likely than others to reform their curriculum? These questions suggest the need to move away from the sound of the convergence alarm and examine converged curricular reform at a more theoretical or conceptual level. Such an examination might not only help enhance efforts of JMC programs to remain on the cutting edge, but also reveal some interesting findings about the way in which JMC programs react to change happening in the media industry.

Following a review of the pertinent literature in the academic and trade press, this paper offers a conceptual framework for assessing the degree to which journalism and mass communication programs have moved from a traditional JMC curriculum to training multimedia journalists and mass communication practitioners. The framework offered has three dimensions: philosophy of curriculum reform, stages of curriculum reform as well as perceptions and predictors of curriculum reform. A departure from previous research on convergence or similar new media change as a type of technological innovation which diffuses through JMC programs (Bulla, 2002; Sutherland, 2001), this paper argues for viewing the converged curriculum as a reform in method of instructional delivery and way of thinking about journalism and mass communication education.

LITERATURE REVIEW

Instead of a general "hits and misses" review of the literature on convergence, it is more useful to organize and synthesize the research and reporting on the convergence and converged curricula into four key areas that lead directly to the conceptual model, the outcome of this paper. The most relevant literature for this discussion establishes the tradition of JMC programs' constant efforts to keep up with changes in the media, reviews the current discussions about convergence in JMC programs, reports the very latest findings from some of the first academic studies on media convergence, and contrasts the views of the converged curriculum as "innovation" with the converged curriculum as reform.

Keeping Up with Industry

The discussions about the converged curriculum should be contextualized historically in order to understand colleges and universities have been responding to perceived changes in the media industry for decades. Even further, this historical context helps to demonstrate the significance of the convergence discussions. In fact, one could argue the convergence concerns and debates are somewhat unique in that they involve merging of completely separate (and many ways dissimilar) units.

In the 1930s, academicians in speech departments and those in industry engaged in fairly healthy debate about the university's role in teaching radio. Among the concerns: how qualified are speech teachers to teach students for the "hip" elements of commercial radio, how technical should such radio courses be and should radio courses be listed in a separate area or lodged within existing speech departments (Riley, 1938). During that period, the number of universities offering radio instruction skyrocketed from 16 in 1933 to 180 in 1938 (Riley, 1938). In 1931, one school is reported to have offered what is believed to be the very first major in radio (Niven, 1960).

In the decades to follow, radio courses would indeed move into their own departments, with television added later. Degrees of "broadcasting" combined instruction in both areas by the mid 1950s. At the end of three decades of broadcasting education in American colleges and universities, a 1960 study showed 44 schools offered some 655 radio-television courses (Niven, 1960). Even then, schools surveyed were asked whether they subscribed to a liberal arts or "liberal" philosophy, a "practical" philosophy or a mix of the two. Only four schools chose the "practical" philosophy oriented to complete professional training while the majority of schools, 32, reported having a mix of liberal arts education and professional training (Niven, 1960). Such debates over the practical vs. liberal arts nature of the curriculum continue today.

The point here is not to give a history of the development of broadcast education, but to show the journey to convergence discussions of the present included questions which have been debated in the past such as "what should the mass media core look like," (Rosenbaum, 1992) and the theoretical arguments for including computers in telecommunications programs (Eastman, 1984), a more recent name for some former radio-television departments. While broadcast educators pondered adding a new computer-oriented course to their curriculum in the early 1980s because of the introduction of such innovations to most broadcast operations (Ducey & Yadon, 1981), traditional print journalism programs debated the addition of "computer-assisted journalism" courses in the 1990s. A 1993 study found of the 258 journalism schools surveyed, about 13 percent offered formal instruction in online database searching, another 17 percent, at the time, had plans to add such courses (DeFleur & Davenport, 1993). Another study of journalism educators found remarkable agreement on what their programs ought to be providing students in terms of skills and new technology training (Scott, 1995). Two-fifths of those surveyed felt journalism education programs were inadequately preparing journalists on technology issues, mostly because of lack of classroom time and resources (Scott, 1995).

The literature on JMC programs efforts to keep up with industry illustrates three very important things: 1) both broadcast and print education programs generally pride themselves on staying "on the cutting edge"; 2) the response to needs of the industry was almost exclusively to add a course (i.e. the course in computer technology) to address the need; 3) JMC programs efforts' to stay current have been medium-specific (i.e. broadcasting, print). With the exception of a report in the mid 1980s of print and broadcast students sharing video display terminals in a pre-cursor of sorts to the convergence operations of the 21st century (Roberts & Dickson, 1985), there has been little or no cross-media discussion about staying "on the cutting edge" in educational offerings and programs. As part of a special issue of *Journalism Educator* on "Journalism and Mass Communication Education for the 21st Century," Cole (1985) predicted "education in specializations will increase." While his example of the proliferation of reporting specialties such as science journalism and medical reporting seems to be right on-target, the "specialization" strategy would appear somewhat at odds with the convergence, multi-media focus of discussions today some 18 years later.

The Convergence Craze

Among the biggest cheerleaders for convergence, John Pavlik, former executive director for Columbia School of Journalism's Center for New Media[1] and Adam Clayton Powell, III, formerly of The Freedom Forum, co-authored a white paper for the AEJMC Task Force on Journalism and Mass Communication Education at the Millennium. The so-called "roadmap to the new media landscape" suggested then that the structure of JMC schools and departments was changing because some courses or curricula were being offered online as JMC educators were actually "re-examining the very notion of what is a classroom" (Pavlik & Powell, 2000).

For years, Pavlik has been touting the ability of the Internet to create the "You News," as he calls it, kind of journalism that if engaging enough, would eventually gain financial support (Pavlik, 1997). A year after publishing their white paper, Pavlik et al.(2001) issued a final report of a subcommittee on educational strategies and technological change for the AEJMC Task Force. In the report, they recommended JMC programs work toward re-conceptualizing and re-organizing their curriculum to emphasize cross-media JMC education. They also suggested JMC programs follow the lead of media organizations who were creating central newsrooms that cut across media boundaries (Pavlik et al., 2001)

In talking about the subcommittee report in a later article, one of the co-authors of the subcommittee report noted how journalism schools and departments have been wedded to the idea of separate sequences along traditional lines such as print, broadcast and advertising. Thus, in his estimation, it would be "far easier to conceive of building a new media sequence to complement traditional sequences than it is to consider incorporating new media into all of the courses that we teach" (Henderson, 2000).

Besides the recent task force reports calling for reform, the first three Association for Education in Journalism and Mass Communication (AEJMC) Annual Conventions of the 21st century had no shortage of panels and mini-plenary sessions addressing the topic of convergence. A cursory reading of the convention programs shows that at least four convergence panels found their way onto the agenda at the 2000 meeting, while seven were offered at the 2001 meeting and three in 2002. This is just one more indicator of the degree to which convergence has been the "hot topic" of conversation among journalism and mass communication educators, many of whom are former practitioners in the media industry. These former industry practitioners take their cues from the industry, as any professional program preparing workers for that industry would do. However, much of what scholars perceive to be happening in industry may not actually be happening. Thus, there is a need to separate perception (on the part of the task forces and the convention panels) from the reality of what is actually transpiring.

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[1] Pavlik, now on faculty at Rutgers University, has recently completed a book, *Converging Media: An Introduction to Mass Communication, which* is published by Allyn and Bacon and due out in 2004.

Perception vs. Reality

Much of what is known about convergence in the industry centers on efforts to bring together traditional media in non-traditional ways. Not surprising, the data gathered have mostly been in the area of news production. For example, in a longitudinal study of 15 broadcast and print media websites, Tremayne (1999) found newspapers, are more likely than broadcast outlets to offer e-mail links to individual reporters and editors. Commercial broadcasters are making greater use of non-scientific user polls than the print media. There was a statistically significant difference between broadcast and print web sites in the nonlinear nature of their stories, or the use of links. The broadcast sites used three times as many links. The study attributed this difference to newspapers uploading content originally appearing in print (shovelware) while broadcasters started from scratch in creating much of their web content. This afforded the broadcasters the opportunity to write their stories with links in mind from the beginning (Tremayne, 1999).

Zavonia and Reichert (2000) conducted a national survey with a sample of photo editors and web directors from news organizations with online and print editions. They found at the majority of newspapers, the online publication used photos from the print operation with virtually no communication or coordinated coverage strategy. Online publications working hand-in-hand with their print partners were termed "anomalies" (Zavoina & Reichert, 2000).

Since data for Zavoina and Reichert's (2000) study were gathered, newspapers have been focusing on making their product more profitable by cutting back their staffs and searching for new revenue streams (Trombly, 2002). This resulted in some news organizations committing fewer resources to news content development. At the same time, newspaper online news site managers admit the number one thing readers of their sites want is breaking news. This has meant many news editors have treated their off-cycle periods as an extra edition of their newspaper (Trombly, 2002). With the exception of a few large newspapers such as the *New York Times* or *Chicago Tribune*, most newspapers have not had the resources to make audio, video, and other multimedia content as part of their routine day-to-day news coverage (Trombly, 2002).

A 2001 survey for the World Association of Newspapers of 200 publishers worldwide found the three biggest barriers to convergence were: "lack of financial resources", "the individualistic nature of journalists", and "the lack of modern multimedia editing systems" Still, at least 100 of the world's multiple media companies were planning and implementing integration strategies (Stone, 2002).

Rather than just print operations, Killebrew (2001) focused on broadcast and print journalists and the cultural incompatibilities between the two cultures in a newsroom setting. He used organizational communications literature to analyze the factors of change associated with convergence journalism. Among the recommendations from his study were that media managers should create an organizational value shift, engage negative forces within their operations and ensure that ongoing communication exists between workers (Killebrew, 2001)

Killebrew's study was prepared following cross-training of journalists at The News Center, a widely-publicized convergence operation involving *The Tampa Tribune*, WFLA-TV and Tampa Bay Online.com, all properties owned by Media General. The three media operate on different floors of a state-of-the-art news complex, the centerpiece of which is a multimedia assignment desk. News of the so-called "three-in-one" operation made the cover of the Radio-Television

News Directors Association membership publication, *Communicator* (Gabettas, 2000), and attracted the attention of many both in journalism education and the media industry.

Three years after the much talked-about operation debuted, new research shows it is more cross-promotion than convergence (Flanagan & Hardenbergh, 2003). Based on an analysis of 88 evening newscasts from WFLA-TV (from the convergence operation) and a competing station, WTSP-TV, Flanagan and Hardenbergh (2003) found the principles of convergence have less to do with content and production of news stories within a newscast and more to do with how the information may get to the viewer. The data from the textual analysis of newscasts showed convergence means cross-promotion and marketing. During the monthlong data gathering period[2], there was only one reported instance of a newspaper practitioner reporting on a broadcast during the primary newscasts, 6 and 11pm (Flanagan & Hardenbergh, 2003).

Another case study of the same operation featured journalists who were creating content for multiple platforms at the News Center (Stevens, 2002). The cases spotlighted the job roles of actual journalists at the News Center. Victoria Lim, WFLA-TV consumer reporter, writes a weekly column for the newspaper, often turns her TV reports into daily stories, and works with TBO.com producers to put together special online packages. Adrian Phillips, a web producer for Tampa Bay Online produces news reports for WFLA-TV. Michelle Bearden, Tampa Tribune religion reporter also does reports from WFLA-TV. Stevens'(2002) case study results would seem to contradict the findings of Flanagan & Hardenbergh's (2003) textual analysis of newscast content.

One of the more comprehensive academic studies on television stations' web strategies revealed broadcast stations were mostly re-assembling and re-purposing their existing news product for the Internet rather than capitalizing on unique advantages of the web and creating content especially for that platform (Chan-Olmsted & Park, 2000). The data collected from 300 local news sites in 1998 showed network affiliation was significantly related to such content variables as top stories, local weather, business information. CBS affiliates were most likely to incorporate news content while ABC affiliates were most likely to link to their network news site. PBS affiliates were least likely to link to their network new sites (Chan-Olmsted & Park, 2000).

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[2] It should be noted that data were gathered during August, which is traditionally one of the slowest news months of the year. It is conceivable that the time of year was the reason for virtually no examples of newspaper reporters on the broadcast stations' newscast.

In presenting their findings, Chan-Omsted & Park (2000) noted that future stages of local television station web site development will likely be influenced by improved digital technology and need for more product differentiation. Four years since those data were collected, delivery technology has improved with the increased penetration of high-speed Internet technologies such as digital subscriber lines (DSL) and even faster cable modems, but product differentiation appears to be happening more slowly. A large number of local broadcast television station groups are now essentially outsourcing the production and management of their Internet news websites to web-hosting firms such as World Now or Internet Broadcasting Systems (IBS). These web-hosting firms make claims of being the "number one news provider on the web" or "building the dominant network of local news and information web sites." Some develop the content for the local news client, who simply provides a local brand image to complete the website look. A one or two-person team feeds the web-hosting firm stories from the station's newscast or wire services such as the Associated Press. Little is expected of the broadcast journalists in terms of writing and producing Internet news content. Instead, the emphasis is on attracting advertising dollars for the website through the local news brand, which is extended into the online environment. This all happens while the station creates efficiencies in staffing by not having to devote reporters or photographers to the task of producing for the web.

The latest television group to use this strategy, Cox Broadcasting Television Group, announced in early 2003 that it would partner with Internet Broadcasting Systems to jointly operate local web sites for all 15 of its television stations in 11 markets. This represented a major shift for the station group, whose TV sites were previously managed by Cox Interactive Media,[3] sister subsidiary of Cox Enterprises.

The common thread running through these academic studies on industry convergence and reports in industry publications on multimedia or web-strategies is that the world predicted by many of those pushing for converged curriculum is not yet a reality. It is quite clear that some convergence and multimedia efforts are happening, but not to the extent that many had predicted. Nevertheless, journalism programs have begun the journey to make their programs more reflective of *perceived* moves toward convergence in the media industry. A handful of studies have addressed those efforts and the views of journalism mass communication faculty.

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[3] To read more about the 2003 Cox/Internet Broadcasting System agreement, see http://www.ibsys.com/pressbox/press-19102332003015-090152.html

Innovation vs. Reform

The literature on journalism educators' convergence-related efforts is best categorized into two approaches: innovation and reform. The former treats the addition of web-oriented instruction or multimedia courses as the adoption of a new technology or innovation. On the other hand, the reform approach focuses more on changing or bringing together what is already present in a journalism/mass communication program. Research taking the innovation approach focuses on the rate of adoption while the reform approach focuses on the process involved in the change. These differences are best illustrated by briefly reviewing the seven studies that comprise this body of literature.

Given the element of new technology that is driving much of the discussion of convergence, it is logical to assume that the converged curriculum or changes in courses of study is likened to the adoption of a new innovation. Rogers'(1983) diffusion of innovations theory deals with the spread of change through a social system. Acknowledging the paradigm that developed from his theory, Rogers more recently has recognized communication scholars' interest in diffusion as a communication process, independent of the type of innovations that are diffused. (Rogers & Singhal, 1996). His theory has been used to study innovations in organizations (Van de ven & Rogers, 1988), making it most appropriate for the study for the "adoption" of converged curriculum in journalism and mass communication organizations and educational units. In fact, Singer (1998) suggests Rogers' diffusion of innovation theory as one of the theory-based underpinnings for study of online journalists' roles.

Grounded in the innovation approach and Roger's paradigm, a 2001 survey of 189 administrators who are members of the Association of Schools of Journalism and Mass Communication (ASJMC) found programs' indications of when they implemented web course features followed a normal distribution curve. This is consistent with the distribution of Rogers' five categories of adoptions (Sutherland, 2001). According to Rogers' theory, only 2.5% are known as the innovators while 13% are early adopters and an equal 34% make up the early majority and late majority. In the tail of the other end of the curve are the 16% who are the last to adopt the new innovation, the laggards. Sutherland (2001) also found three major constraints to implementation of web in the teaching of JMC courses: funding concerns, complexities of system-wide adjustments and time drains on faculty doing the instruction. Half of the 137 who responded indicated that accreditation agency expectations did not act as an imperative to implement web course features. They were uncertain as to whether profit pressures and cost-effectiveness of courses with web features were imperatives (Sutherland, 2001).

Another study using the innovation approach to studying convergence involved not only journalism educators, but also media practitioners. Bulla (2002) argued that diffusion of innovation is most applicable because the majority of media owners had not come to the conclusion that the "relative advantage of convergence outweighs the paradigm it would supersede." In other words, media managers, in small markets have to weigh the benefits of converging or not converging (Bulla, 2002). His 2002 e-mail survey of 114 media practitioners found the most likely convergence scenario was when online operations combined with newspaper while the second most likely involved three platforms: online, newspaper and television. Among the biggest changes for the practitioners in converged operations were the disappearance of the traditional newspaper and television news cycles and having to work at a faster pace. Using the innovative approach, Bulla (2002) identified the University of Kansas as an early adopter of a convergence-based curriculum. He also conducted interviews with high school and college journalism educators. Based on these interviews, Bulla (2002) suggested that journalism teachers redesign their programs and curricula to take into account changes in an industry communicating across-platform and continue to communicate the possibilities of a profession. Unlike other studies of JMC programs, Bulla included interviews with high school educators.

Contrary to these two studies, which took the innovation approach to the study of JMC convergence efforts, at least five articles have focused more on the element of reform involved in the JMC curricula changes. They were also different from the studies that took the innovation approach in that most were not data-based studies. Instead, these authors provided more commentary or a "lessons learned" approached to discussing their converged curricula or program offerings. The one exception was the earliest of these studies where data from stakeholder interviews and a survey of students were gathered following Brigham Young University's creation of a converged newsroom bringing together student broadcast, print, and online journalism operations. Hammond, Petersen, & Thomsen (2000) found print journalism students were most skeptical about the converged operation before beginning while the broadcast majors most identified with the concept before the experience. Interview data showed the students involved viewed the converged newsroom as undermining their medium-specific identity.

Utsler (2001) reported on the University of Kansas' implementation of a convergence curriculum in two issues of the Broadcast Education Association's correspondence journal, *Feedback*. Taking the reform approach, Utsler identified the "new sequence" approach as a traditional curriculum development practice that was a part of the discussions early in the process. Like Hammond et al.(2000) Utsler (2001) found, medium identification or the "what's your major" concern was a major one on the part of students at KU. The flexibility of adding a new program by adding a capstone course instead of a whole new set (sequence) of courses was one advantage of KU's curriculum. In his second article, Utsler (2002) reported that the convergence curriculum changed more than just the curriculum, but also caused faculty to re-examine their roles and responsibilities. After a year of implementation, the faculty opposition almost disappeared (Utsler, 2002). Thirdly, because faculty members are rarely well versed in multiple media, KU faculty had to use a team teaching strategy. The outcome of this team teaming was a realization of the cultural differences between the teaching approaches in the various media (i.e. print vs. broadcast). One-fifth of the courses in the KU catalog were eliminated with the converged curriculum (Utsler, 2002).

A third example of the reform approach featured Washington and Lee University's journey to a converged curriculum. Artwick (2002) recounted the five-year journey of the Virginia school to a $2 million-plus fully-integrated digital media facility. Five former broadcast and print classes worked together on a twice-weekly cable news program and website, the *Rockbridge Report*. Likening the process to "dismantling silos," Artwick (2002) outlined the steps in implementing a converged curriculum including designating a lead professor, defining roles for the other professors, and securing technical support.

Taking the reform approach, Foote (2002) offered a framework for what he calls "convergence engineering." The framework involved three stages: 1) Establishing a structure where all media can coexist and coalesce in the same place; 2) Bringing together skill sets employed in different media into courses at the beginning of the curriculum and carrying it through to specialization at the end; and 3) Integrating theoretical, non-skills courses with converged media perspective. Foote (2002) identified several constraints to convergence including resistance to change, concerns about forfeiture of a program's existing quality, and shortage of faculty comfortable teaching skills courses across platforms, and availability of equipment. Acknowledging the expense in using a team-teaching approach, Foote (2002) also noted the impracticality of waiting for a new generation of faculty.

Whether taking the innovation or the reform approach, the literature on JMC programs' converged curriculum efforts offers a number of important points. Among them are the challenge of students with an affinity to a traditional medium-specific majority; the importance of team teaching; the resistance of faculty who may be averse to change, and the role of budgetary constraints. These common themes in this literature are essential to being able to take this area of research to the next level: the development of a conceptual model for examining multimedia curricular reform.

THE CONCEPTUAL MODEL

Defining Terms

First and foremost, one must define what is meant by a "converged" curriculum. Is converged curriculum the same thing as the multimedia curriculum? The author of this paper has used the two interchangeably. In his study, Killebrew (2001) drew the contrasts between print and broadcast as he noted that traditional journalism training has focused on providing specific yet significantly different skills. He pointed to a distinct divergence in training broadcast reporters from such training for print reporters. While broadcast students nowadays are introduced to the emphasis on consultants, image and ratings, print media reporter training continues to focus on the art and science of information gathering, the inverted pyramid with some emphasis on depth content while remaining literary where possible (Killebrew, 2001).

Conceptually, the process of moving from a traditional journalism/mass communication curriculum to a converged curriculum is one of philosophy, action characterized by stages of curriculum convergence and perception. As shown in figure 1, these three dimensions: the philosophical, the stages and perception comprise the model for multimedia curriculum reform. The concentric circles suggest that one dimension relates to each of the other two dimensions, which one's philosophy about convergence being at the center. An individual program can be identified in its convergence process (or lack thereof) by the philosophy of its leader and faculty, the actions of its faculty (i.e. to change the curriculum) and perceptions of those in charge about what is or is not happening in the industry.

Dimension 1- Philosophy: *converged, non-converged, mixed*

Essentially, the converged curriculum dismantles medium-specific silos of teaching to a functional, multi-platform curriculum based on broader areas of interest (Foote, 2002). Such a program de-emphasizes training in a specific media and emphasizes multi-platform training. Programs with curricula that fit this definition would be termed *converged*. The University of Wisconsin-Madison and University of Kansas's curricula would be two examples of this converged curriculum. At UW-Madison, five distinct sequences were replaced by two "less rigid" tracks: journalism and strategic communication. Similarly, KU's faculty did away with sequences such as news-editorial, magazines, and broadcast news. Those sequences were replaced with two cores: news/information and strategic communication.

It is less simple to identify the programs on the other extreme. Definitionally, a curriculum that emphasizes training in a specific media and de-emphasizes multi-platform training would be termed *non-converged*. Examples of the non-converged programs would be the University of Alabama and the University of Georgia, which offer a broadcast journalism major, journalism major, advertising and public relations majors in three separate academic departments. By their programs of study, they emphasize media-specific training and de-emphasize multi-platform training. This does not mean such non-converged programs do not offer multimedia courses or courses in such areas of web journalism.

In between these two extremes are those JMC programs that emphasize both training in a specific media and multi-platform training. For the purposes of this model, those programs are defined as *mixed*. Brigham Young University's communication major with an emphasis in broadcast journalism, print journalism, advertising/marketing communication and public relations coupled with its converged newsroom for the student newspaper, television and radio broadcast operations would be an example of a mixed program. Washington and Lee's curriculum offers a journalism major but maintains an print professional, electronic professional sequence within the major. Additionally, its *Rockbridge Report* program (Artwick, 2002) brings students together in a converged environment. Both of these programs have curricula consistent with that recommended by the AEJMC Task Force on Teaching and Learning in the New Millennium: re-conceptualized and re-organized their curriculum and central newsrooms that cut across media boundaries (Pavlik et al., 2001)

To recap, the philosophical dimension rests squarely on the thinking of those in the JMC program about what is important. In the absence of a set of agreed upon standards and definitions about what is convergence, one must rely on the ideas about education as presented by those in charge. However, those ideas must then be matched with actual action, which is depicted in the stages dimension of the model.

Dimension 2 –Stages: wait-and-see, reactive, re-aligned

In his description of convergence engineering, Foote (2002) noted a few schools are taking "baby steps" toward the converged curriculum while others are in "denial that change should be made." It would be easy to assume that non-converged programs are in denial. This could not be further from the truth. Thus, it is necessary in addition to categorizing JMC programs by their philosophy as converged, non-converged and mixed, is necessary to identify them by the actions they've taken as being at various stages on a continuum in their curriculum reform. Based on the KU (Utsler, 2001, 2002) , Washington and Lee (Artwick, 2002) and Brigham Young (Hammond et al., 2000), cases in the literature, three dimensions of JMC multimedia curricular reform are offered in this dimension of the model: wait-and-see, reactive, and realignment (See Figure 2).

Programs at the *wait-and-see* stage have opted not to change their curricula. A necessary condition for the wait-and-see stage is a program must be non-converged or emphasize media specific training over multimedia training. In addition, programs at the wait-and-see stage have not added a sequence for web or convergence. They also have not added a course to teach online or web-based journalism skills. It is important to mention that many programs may offer training in web publishing without teaching web-based journalism or online journalism. The former would not be related to converged curriculum. The latter would actually be indicative of a move to the second stage on the continuum.

Programs in the *reactive* stage, have added either a course in online or web-based journalism or a sequence in that area. Like the wait-and-see stage, a necessary condition for being in the reactive stage is that the program is non-converged. The difference here is in the actions taken even as they remain non-converged. When programs essentially make their first moves (i.e. adding a course), they have migrated from waiting and seeing to reacting to a perceived need for training. By definition, the programs still operate from the philosophy that medium-specific training is emphasized over multimedia training, but they recognize the importance of offering some training in Internet or web-based journalism. The literature on JMC programs keeping up with the industry (DeFleur & Davenport, 1993; Ducey & Yadon, 1981; Niven, 1960; Riley, 1938; Rosenbaum, 1992) reminds us of this reactive stage. Those programs at the *reactive* stage add a sequence to the traditional respond to "react" to the advent of the Internet or new media.

A program in the *realignment* stage has gone beyond reacting to events and has opted to change its structure. Thus, a necessary condition of programs at this third stage is they are either mixed or converged in their philosophy about JMC education. They either encourage both medium-specific and cross-media training or emphasis cross-media training. A second necessary condition for programs at this stage is that they have not added a sequence. If they've added a sequence, they truly have not re-aligned their structure. It is important to mention that programs, which have reached the realignment stage, also may have added a course in online or web-based media. In the case of some converged programs, the online or web-based media course is a capstone course for students who've focused cross-media throughout their coursework but desire specific advanced skills in web-based journalism.

Unlike, the first dimension of the model, the second dimension is driven by action. However, it does not take into consideration other factors that might influence those actions. These perceptions about multimedia or convergence and its relevance for students going into the industry plus other predictors of converged or non-converged curricula are encompassed in the third dimension of the model for multimedia curriculum reform.

Dimension 3- Perceptions and Predictors

The power in having a conceptual model is in its ability to predict or explain certain phenomena. In this instance, one might begin to understand why certain programs were converged or non-converged or at particular stages of multimedia curriculum reform. The third dimension of the model includes two components. The first component addresses the perceptions of what is happening in the industry. Two major perceptive concepts are important in this dimension: *need for multimedia skills now* and *need for multimedia skills later.* These two perceptive concepts emerge from the focus of much of the convergence discussion. As mostly professional programs, JMC programs are operating with the charge of preparing students with skills they will need when they go into industry. Of course, not all JMC programs are professionally-driven and not all graduates will go into the industry.

In addition to the perceptive concepts, the multimedia curriculum reform model includes seven predictors of philosophy and stage of a converged curriculum (dimensions 1 and 2): *ASJMC membership, ACEJMC accreditation, senior/junior faculty ratio, size of program (based on number of students enrolled), institutional mission, program structure*, and *faculty interest*. Before relating the perception and predictors in the third dimension to the first two dimensions, it is important to conceptually define the eight predictors.

Founded in 1917 as the American Association of Schools and Departments of Journalism, ASJMC today included deans, directors and department heads of units that provide instruction in journalism and mass communication. Its members are generally active in media organizations and represent their units in industry and academic media organizations. Thus, this type of active involvement, *ASJMC membership*, is offered as a predictor.

Formed in 1945 as the American Council on Education in Journalism, the Accrediting Council on Education in Journalism and Mass Communications is the agency formally recognized by the Council for Higher Education Accreditation (CHEA) for accrediting programs for professional education in journalism and mass communications in institutions of higher learning. Currently, ACEJMC accredits 105 schools and departments of journalism and mass communications at 103 colleges and universities in the United States and one university outside the country on 12 standards such as assessment, institutional uniqueness, professional values and competencies. Among the 12 standards is one that addresses curricular balance. Thus, it stands to reason that such *ACEJMC accreditation*, or lack thereof might be a predictor of multimedia curriculum reform.

Foote (2002) identified several constraints to convergence including resistance to change, concerns about forfeiture of a program's existing quality, and shortage of faculty comfortable teaching skills courses across platforms, and availability of equipment. Thus, the *ratio of senior/junior faculty* would likely have some influence on multimedia curriculum reform as would the level of *faculty interest in a converged curriculum*. Whether the school has a teaching or research *mission*, *structured* into multiple departments and *size* in terms of number of students all could potentially predict the multimedia curriculum reform efforts.

The three dimensions on how a journalism/mass communication program may be defined (philosophy, stage and perception/predictor) are considered together in the following 10 propositions presented here in three clusters to correspond with the three dimensions of the conceptual model. Propositions 1-3 focus on a philosophy. Propositions 4-8 deal with the stage of program convergence. Proposition 9 relates perceptive concepts and predictors of convergence curricular reform while Proposition 10 relates perceptive concept to the stage of convergence.

Cluster 1

Proposition 1: Non ACEJMC-accredited programs are more likely than ACEJMC-accredited programs to have a converged philosophy.

Despite its ability to provide an assurance of quality to students, parents, and the public, the ACEJMC accreditation of a program places on it restrictions in terms of the number of credit hours required in journalism and mass communication. One might assume that non-accredited programs with more flexibility could require more courses in multimedia journalism or convergence. Unlike the ACEJMC-accredited units, which may be structured to meet the expectations of the accrediting council, the non-accredited programs are also more likely to experiment with alternate structures consistent with a converged philosophy.

Proposition 2 JMC programs with low faculty interest in convergence are more likely than JMC programs with high faculty interest to have a non-converged philosophy.

Foote (2002) cited resistance to change and shortage of faculty comfortable teaching skills courses across platforms as two constraints to convergence. Both constraints point to the opinions and interests of faculty, who are charged with deciding a particular unit's course offerings and requirements.

Proposition 3 JMC programs with a departmental structure are more likely than programs in a single department to have a non-converged philosophy.

Departmental structures are most advantageous when it comes to apportioning scare financial resources. On other hand, departments may establish walls that are difficult to overcome when it comes to working together in a convergence environment. Different course philosophies and requirements that are department-specific are among those barriers to convergence. Thus, it is less likely one will find a converged curriculum in programs where, for instance, print and broadcast or video and still photography are taught in different departments.

Cluster 2

Proposition 4: JMC programs headed by an ASJMC member are more likely than JMC programs headed by a non-ASJMC member to be at the reactive stage of program convergence.

As a journalism or mass communication department heads or administrators, ASJMC members pay an annual membership fee to remain a part of an organization designed to keep their leaders of media programs "on the cutting edge." Given that reality, it is logical expect that these administrators would have at least moved from the wait-and-see to the reactive stage of program convergence.

Proposition 5 Large ACEJMC-accredited programs are more likely than medium or small ACEJMC-accredited programs to be in the reactive stage of program convergence.

The size of accredited programs also suggests pressure for change. Those programs that enroll the greatest number of students are likely under more pressure to remain on the cutting edge. Thus, while their size makes it more difficult to completely re-align their structures, they also are less comfortable waiting to do something. Thus, they are more likely to be in the reactive stage of reforming their curriculum.

Proposition 6 JMC programs, whose primary mission is research, (Carnegie categories "research extensive" and "research intensive") are more likely than JMC programs whose primary mission is teaching (non-research extensive and non-research intensive). to be at the wait-and-see stage of program convergence.

Teaching schools tend to have more contract or non-research faculty. Thus, their flexibility in hiring faculty to teach cross-media or convergence is greater than those programs whose primary mission is research and may have a harder time locating a convergence faculty member who also holds a terminal degree and is able to pursue a program of scholarly research.

Proposition 7 JMC programs situated in a single department are more likely than programs with a departmental structure to be at the realigned stage of program convergence.

As mentioned earlier, programs with multiple departments in journalism and mass communication may find the barriers to convergence to be greater. Thus, the other programs (with journalism and mass communication programs in a single department) are the ones expected to have moved to stage of realigning their curricula.

Proposition 8: Of the seven predictors in dimension 3, level of faculty interest will be the strongest predictor of stage of program convergence.

As mentioned earlier, faculty members play a major role in deciding program offerings based on their own experience and comfort level with teaching in certain areas. Ultimately, if faculty members are supportive of a converged curricular reform, such a change can happen. On the other hand, lack of such support is likely to mean less convergence. Of all of the predictors of convergence curriculum reform, this one is likely to be the most important.

Cluster 3

Proposition 9 The variable, need for multimedia skills now, will be positively related to level of faculty interest in convergence.

Faculty who think students need a set of skills for multimedia are also more likely to put the students' needs above their (faculty) own abilities or background. Thus, when the perceived need for a set of skills is high, the interest in faculty would also likely be greater.

Proposition 10 JMC programs with high perceived need for multimedia skills in the future will be more likely than those with low perceived need for multimedia skills in the future to be at the reactive stage of program convergence.

Not only are faculty likely to be more involved in convergence and multimedia training if there's a need for those skills in the workplace. Faculty members respond most quickly to those mandates from media industry as they (the faculty) attempt to remain "on the cutting edge."

The Next Step: Testing the Model

The purpose of this paper was to offer a conceptual framework for assessing the degree to which journalism and mass communication programs have moved from a traditional JMC curriculum to training multimedia journalists and mass communication practitioners. The three philosophies (non-converged, mixed, converged), the continuum of stages (wait-and-see to realigned) as well as the perceptions and predictors outlined above will serve to raise the level of discussion about convergence to another level. Instead of focusing on what is or is not happening in the industry, the model shifts the focus to reform happening in JMC programs. Obviously, the next step includes the gathering of data to test the model. It is hoped that with such data, JMC administrators and faculty can better understand their relationship with the industry and their colleagues in other JMC programs.

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Figure 1- Multimedia Curricular Reform Model

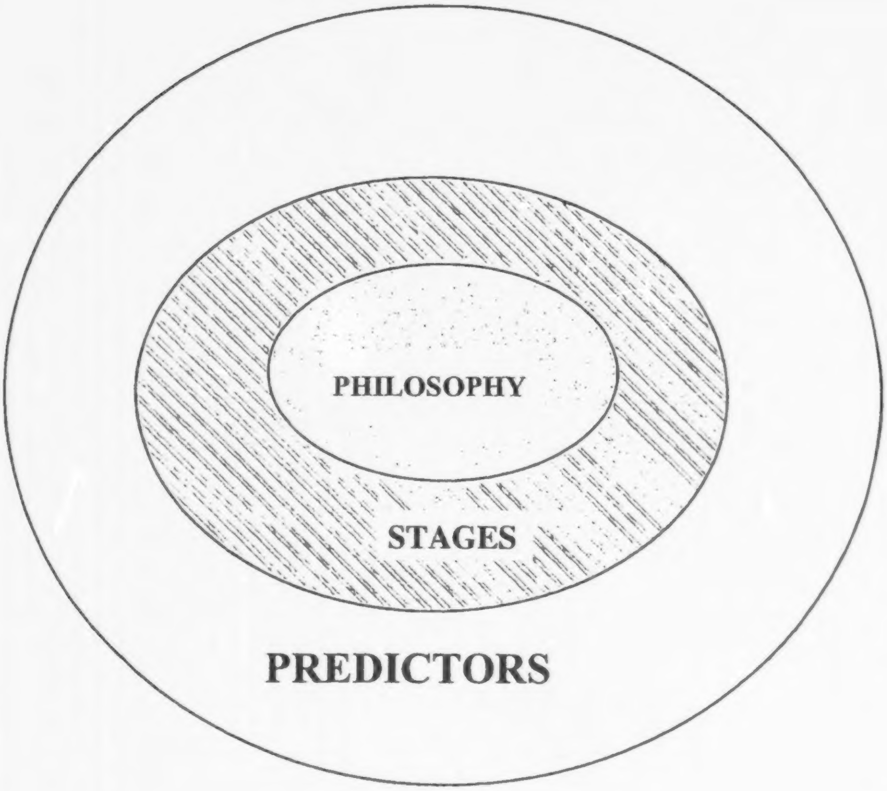
PHILOSOPHY
STAGES
PREDICTORS

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Figure 2: Three stages of Multimedia curriculum reform (Dimension 2)

WAIT-AND SEE

Not Converged

- No online/web journalism course
- No online/web journalism sequence

REACTIVE

Not Converged

-Online web journalism sequence or online/web journalism sequence

REALIGNED

Mixed or Converged

-No online/web journalism sequence

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Massively Multiplayer Mayhem: Aggression in an Online Game

CT4P

Abstract

Research on violent video games suggests that play leads to aggressive behavior. The first longitudinal study of an online violent video game with a control group tested for changes in several aggression measures and for cultivation effects. The findings did not support the assertion that a violent game will cause substantial increases in real-world aggression, but some cultivation effects were found. The findings are presented and discussed, along with their implications for research and policy.

Dmitri Williams
Marko Skoric

U. michigan

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Once considered a defunct fad of the 1970s and 80s, video games are now a 30-yeard old media phenomenon that has entered the cultural mainstream. No longer considered only children's toys, video games have become a significant cultural force crossing old demographic boundaries, and are now played in some form or another, online or off, by a majority of Americans (Pew, 2002; *State of the Industry Report 2000-2001*, 2001). Over 60% of Americans play some form of interactive game on a regular basis, and 32% of the game playing population is now over 35 (*State of the Industry Report 2000-2001*, 2001). Financially, games have passed the motion picture industry in sales (Williams, 2002).

As with most new media technologies, fears of games' social and health impacts have followed (Dominick, 1984; Ellis, 1984; Fisher, 1994; Wartella & Reeves, 1983, 1985). These fears have risen alongside the rise of the Internet and its own corresponding set of concerns (Slater, 2003). It follows that online games have become a particularly worrying source for many, with politicians, pundits and media outlets focusing on the possible link between Internet game violence and real-world aggression (*Marketing Violence to Children*, 2000; *Prepared Statement of L. Rowell Huesmann*, 1999; Walsh, 2001). The shocking incident at Columbine High School in Littleton, Colorado, served as a flashpoint for these concerns, with many suggesting that games played a significant role in the tragedy (Slatalla, 1999; Taylor, 1999). These concerns have led to a series of legal challenges involving the marketing and sale of games to minors (Anders, 1999; FTC, 2001) and First Amendment cases involving arcades (Engle, 2001; Jurkowitz, 2002). Content analyses have shown that games are increasingly violent, even those labeled "E" as appropriate for everyone (Knowlee et al., 2001; Thompson & Haninger, 2001). One reason for this trend is that the first generation of game players has aged and its tastes and expectations have been more likely to include mature fare (Curtiss, 2002; Pham, 2002; Russo, 2001). These tastes, combined with ever-increasing computer processing speed, have made for a series of leaps in the graphic and photorealistic nature of violent games. On the other hand, such violent games have been shown to improve visual acuity (Green & Bavelier, 2003).

Drawing from more established research on television (Bandura, 1994; Berkowitz & Rogers, 1986; L. Huesmann, 1986), the research on video games has explored effects on aggression and delinquency. However, several recent reviews and meta-analyses of the game research (C. A. Anderson & Bushman, 2001; Dill & Dill, 1998; M. Griffiths, 1999; J. L. Sherry, 2001) suggest that we have limited knowledge of what games do to or for people, and that we have even less understanding about the range of content.

The issue is hardly academic—a series of public health, privacy and First Amendment issues are at stake, and policy makers and pundits on all sides are grasping for evidence to support their positions. Several gaps in the literature must still be filled before reaching any solid conclusions. In this article, we discuss and bridge those gaps by constructing an analytical framework that allows for the study of games while accounting for their internal and external contexts. Furthermore, because the field has failed to demonstrate long-term causal links between game playing and aggression, we undertake the first longitudinal field study of a game.

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Prior Research

The research into game violence and aggression is rooted firmly in the more established field of media effects (Funk, 1993), and so researchers have drawn on a series of theories and approaches that have established what most consider to be a reasonable link between media violence and real-world aggression. Following in the footsteps of this research tradition, the game researchers have expected to find stronger links with their medium of study because of the comparatively active level of participation in game play compared to television viewing. However, while some studies have found connections between game violence and aggression (Ballard & Weist, 1995; Bushman & Anderson, 2002; Irwin & Gross, 1995; Schutte, Malouff, Post-Gordon, & Rodasta, 1988), others have not (Cooper & Mackie, 1986; Graybill, Kirsch, & Esselman, 1985; Scott, 1995), and researchers remain divided (M. D. Griffiths, 2000; Wiegman & Schie, 2000). Several recent reviews of the video game research literature have similarly reached differing conclusions, although they each have pointed out a series of serious shortcomings in the literature. Sherry's meta-analysis (J. L. Sherry, 2001) suggests that games do indeed have some kind of aggression effect, and that this effect is likely smaller than television's. However, Sherry noted the additional proviso that the varying findings, treatment times, stimuli and subject pools prevent a truly clear understanding of effects. Treatment times have varied from five to 75 minutes, and have consisted of "violent" content ranging from crude box-like shapes in an early 1980s boxing game (Graybill et al., 1985) to highly realistic 3D hand-to-hand combat (Ballard & Weist, 1995). A similar effort by Anderson and Bushman reached the conclusion that exposure to violent video games is positively linked with aggression, but they noted the important absence of longitudinal studies from their analysis (C. A. Anderson & Bushman, 2001). Two other reviews of the literature (Dill & Dill, 1998; M. Griffiths, 1999)—from the same journal—reached opposite conclusions about the strength of the findings to date. In the first, Dill and Dill refrained from doing a meta-analysis at all because of what they saw as too few studies. Instead, they suggest that the literature points to aggression findings, but that the key shortcomings are a lack of longitudinal methods and an over-reliance on minors as subjects of study. Griffiths also found fault with the research's reliance on young subjects. Additionally, he suggested that the wide range of available games have been largely ignored as having potentially different effects, a theme to be taken up shortly.

There has been some survey-based investigation into the differential impacts of games when the players vary by age, gender or prior experience (Gibb, Bailey, Lambirth, & Wilson, 1983; Kestenbaum & Weinstein, 1985; Lin & Leper, 1987; McClure & Mears, 1984), but solid conclusions have been elusive. As Funk has noted, attempts to describe frequent game players' profiles have been both contradictory and inconclusive (Funk, 1992). Still, researchers continue to measure these variables because of their predictive power in other aggression-related studies (Paik & Comstock, 1994) and they are included in this research as controls.

In sum, researchers suspect a strong linkage between games and aggression, but with the exception of relatively short-term effects on young adults and children, they have yet to demonstrate this link conclusively. Much of this may simply be from a lack of data and investigation: We note that there are not many more actual experiments and published studies than reviews and meta-analyses of them. Still, we agree with the other researchers that some games may have long-term effects on aggression due to similar mechanisms found with television violence—learning, rehearsal and automatization of cognitive structures such as aggressive beliefs, schemata, and scripts (C. A. Anderson & Bushman, 2001). Furthermore, unlike television, video games also allow players to practice their aggressive behavioral scripts (C. A. Anderson & Dill, 2000). Still, we notice several gaps that might be bridged. For example, one limitation of the research has been the over-reliance on very young subjects in experiments. While exploring issues of children and game violence remains important, we are puzzled that the research community has rejected studying all ages even while the average age of game players steadily increases for both home consoles and online play. Those under 18 now make up only 42% of console players and only 28% of PC players. Data from the 2002 Pew Internet and American Life Project shows that 37% of all Internet users have played a game online, including an astounding 38% of people over 65 (Pew, 2002). Because the effect size from television violence is thought to be much lower for adults (Paik and Comstock, 1994), we can speculate that this may also be true for video games.

However, we focus primarily on two potentially major gaps that have yet to be bridged. One is the basic question of method, and the other is a question of the generalizability of the stimuli chosen for study.

To date, game research has relied chiefly on only two methods, the survey and the laboratory or observational field experiment. We have yet to see studies employing longitudinal panel or experimental designs that would certainly provide us with a better understanding of the long-term effects of games. Research suggests that the length of game play may be a vital factor even in the studies investigating short-term effects. In his meta-analysis Sherry (2001) noted that there were two studies of one particular game

(*Mortal Kombat*) with different durations. In the first study, undergraduates played the game for 10 minutes, and the researchers concluded that their higher levels of aggression were due to game play (Ballard & Weist, 1995). In the second study, undergraduates played the same game for 75 minutes, and the researchers found almost no effects (Hoffman, 1995). As Sherry concluded, the initial effects might simply have been arousal that wears of to be replaced by boredom or fatigue, neither of which is thought to increase aggression. Laboratory-based experiments on games and aggression have also been assailed as unduly artificial, too short to measure anything, and not representing the social context of game play (Goldstein, 2001). This last point is especially salient, given that 60% of gamers now play with friends and 25% play with a spouse or parent (*State of the Industry Report 2000-2001*, 2001). More importantly, for the field to establish a true long-term causal relationship between games and aggression, a longitudinal method must also be employed to help triangulate the findings. Regardless of their individual expectations, each of the four major reviews here came to the same conclusion. To quote Anderson and Bushman, "longitudinal research is badly needed" (C. A. Anderson & Bushman, 2001).

Our second point is one that has received little attention in the research to date, but that we believe is equally, if not more, important. This is the issue of the choice of stimulus in the experiment, and what can be said afterwards. Only recently have researchers begun to measure important variables that relate to the content of the game under study, such as the in-game situations contextualizing violent acts (Smith, Lachlan, & Tamborini, 2003). Anderson and Dill have been among the few to actually pretest their stimuli to rate it on their dimensions of interest (C. A. Anderson & Dill, 2000). Too often experimenters have chosen a stimulus without having a clear understanding of it. This issue is not to be glossed over. Indeed, the wide variety of video game content and play experiences would likely surprise most first-time investigators. The online database www.allgame.com lists descriptions of 35,400 different games across 94 platforms. To collapse this wide variety of content into a variable labeled "game play" is the equivalent of assuming that all television, radio or motion picture use is the same. As Dill and Dill have noted, "This is akin to lumping films like *The Little Mermaid* with *Pulp Fiction*, and expecting this combined 'movie viewing' variable to predict increases in aggressive behavior" (Dill & Dill, 1998). For this reason, we embarked on an in-depth participant observation study of our game prior to the main study. Doing so gave us crucial insight into the context of the game world, and helped us to better formulate our hypotheses and research questions. What follows is a description of our stimulus, and the subsequent hypotheses that flow from our study of it.

Understanding the Game

As noted above, the content of a given game is crucially important for understanding what the possible effects might be. When playing, is the individual physically isolated or with others? Is she competing against the computer or against other players? What are the contexts for the violence? There are a wide variety of video games available, and these can be further broken down into a series of genre classifications, and by platform type (e.g. on a home console, on a PC, or in an arcade). Using the industry's widely used typology of game genres, we are studying a role-playing game (RPG). RPGs are games in which the player creates, grows, alters and maintains a character through a longer-than-average play experience. RPGs are also the most popular game genre, according to data from industry analyst NPD Funworld (Ow, 2003). We have additionally chosen to study an online game because networked gaming is an extremely high growth area across all play platforms. Online games are played by large and small groups of players, and last for very different time periods. The smallest games—for example, online chess—have only two players and are relatively short. Medium-sized games such as *Counterstrike* or *Quake*, may last about the same time period, but have from 2 to 40 players. The largest games of all have hundreds of thousands of players and continue indefinitely. This last kind of game is known as a "massively multiplayer online role-playing game," more commonly referred to as an MMORPG or MMRPG. These games are the descendents of the MUDs and MOOs best known from the work of Turkle (1995). The leading title, *Everquest*, is an MMRPG that maintains an active subscriber base of over 400,000 players, each of whom pays about $13 a month for access to the game world. Our choice of game therefore represents the most popular genre of today's games and the platform and setting that will likely mark the industry's future.

Suddenly, the idea of a game study contains many more variables than have been considered previously. We believe researchers should account for genre, setting and duration when designing experiments. To better understand these variables, we engaged in a two-month participant observation study of a game. If the setting and play style might affect the dependent variables under study, we preferred to enter the process with an intimate knowledge of the game experience. Our choice was the game *Asheron's Call 2* (*AC2*), and what follows is a description of its characteristics relevant to a study of aggression.

In an MMRPG, players log into and out of a virtual environment that is "persistent," or always on. Players access this shared virtual space and see a representation of themselves on the screen—their avatar—along with other players'. *AC2* is a fantasy-based game, complete with the expected assortment of evil monsters, virtuous heroes (and heroines) and panoramic environments.

Our reasons for choosing this particular game are based on its accessibility, its level of violence, the game goals, the level of interactions with other players and its representativeness. *AC2* is considered in the game community to be one of the more accessible MMRPGs available ("State of the Online Union," 2002). Its game manual is short and simple, and the user interface has few options compared to some of the more complex MMRPGs. This relative simplicity makes it better-suited to first-time players, especially ones not previously interested in or aware of such games who might be solicited for a study. *AC2* is a game based on combat and conflict, but this conflict is almost never between online players. Instead, the wide variety of creatures and critters that assail the players are directed by the computer.

Combat takes place on a nearly constant basis in *AC2*, and cannot be avoided if the player wants to complete the game's various tasks. Combat is a necessity in the game to reach the various goals, but is rarely the goal in itself. In fact, monsters that appear in a player's path are often avoided when they offer the player little other than a delay. Combat itself is fairly typical of the genre in that it involves weaponry and spells, and is of middling graphic violence. The bloodshed and detail of the violence is less graphic than a first-person shooter game such as *Unreal* or *Counterstrike*, but is certainly not sanitized. Blood oozes and flies, and creatures writhe and scream when they are reduced to gory corpses. The overall threat level of the game environment is notable. Players start off in safe zones where they cannot be attacked, but must soon venture outside to begin their tasks. Once outside, foreboding music heralds a series of imminent attacks and the player's "radar" screen shows the location of monsters lying in wait.

The role of the other players is particularly important in *AC2*. Players may talk with one another openly or in private chat. Those who venture out alone into the wilderness usually fare less well than those who collaborate and join temporary, or more long-lasting "fellowships." And because players cannot attack other players except in a few specially marked areas, there is very little inter-player strife. In fact, the player community is proactive in its help of others, with players frequently taking a moment to help out those with less power or knowledge.

Like most MMRPGs, *AC2* has a cultish following and the most hard-core players report that they play upwards of 60 to 80 hours per week. But *AC2* is also friendly and accessible to those new to the genre ("State of the Online Union," 2002), and so is worth studying given the game industry's trajectory. It is accepted in the booming game trade that future growth will come not from hard-core players, but from more mainstream gamers interested in smaller time commitments and more accessible fare (*The U.S. Market for Video Games and PC Entertainment Software*, 2000; Wade, 2000; Williams, 2002). In sum, *AC2* is a largely collaborative, violent online game, and was chosen as a stimulus because it is representative of violent online role playing games that appeal to a wide audience.

Mechanisms and Hypotheses

Our hypotheses are driven by existing theory, and differ from prior research only with regards to duration. Because *AC2* is a game played over a long period of time, a short-term study would lack naturalism. Our stimulus is thus less useful for studying short-term mechanisms such as arousal or priming. Instead, the longitudinal design explained in the next section is intended to test for effects that occur in the longer term. Several long-term mechanisms are suggested by prior research (Dill & Dill, 1998; J. L. Sherry, 2001). The first mechanism we tested was the cultivation approach (Gerbner, Gross, Morgan, & Signiorelli, 1980) used by Anderson and Dill (2000). If the world of the game affects perceptions of the real world, longer play should result in an increased sense of danger. Moreover, our participant observation allows us to make a more specific prediction about this particular mechanism. The world of *AC2* teaches players that they must be cautious in the virtual world. Anytime a player ventures outside of a safe zone, they are attacked by something nasty. If this translates to the real world, people should feel less safe outside of their homes, especially in unfamiliar situations.

H_1: Game play will increase perceptions of a "mean" or "dangerous" world.

In addition to changes in perception, the existing literature predicts changes in aggressive cognitions. The major mechanisms in this realm are the cognitive-neoassociation analysis (CNA) model (C. Anderson & Ford, 1986; Berkowitz & Rogers, 1986), social learning theory (Bandura, 1994; Schutte et al., 1988) and the repetition of aggressive schemas (L. Huesmann, 1986). All of these approaches are subsumed into Anderson and Bushman's General Aggression Model (GAM), which incorporates aggressive beliefs and attitudes, perceptual schemata, expectation schemata, behavior scripts and desensitization (C. A. Anderson & Bushman, 2001). In short, according to the GAM, learning, rehearsal and activation of aggression-related cognitive structures causes aggressive behavior via changes in aggressive personality. If these approaches are applicable, we should expect an increase in both physical aggression and aggressive cognitions over time when players are exposed to a violent game.

Thus, in this study we tested for changes in aggressive cognitions, as well as changes in physical and verbal aggression. Our hypotheses are straightforward since the game world is based on violence as the only means to success:

H_2: Game play will increase aggressive cognitions.

H_3: Game play will increase physical aggression.

The prediction for verbal aggression is less clear. Our observation of the game found that the verbal traffic was overwhelmingly friendly and positive. Players congratulated each other when they met goals and engaged in humorous conversations. The antagonistic language associated with some competitive online games was not present. Therefore, should we expect an increase in verbal aggression? If social learning is the mechanism, we should expect no increase in verbal aggression, and perhaps even a decrease after immersion in a positive verbal environment.

RQ_1: How will game play affect verbal aggression?

METHOD

Because prior research has not used a longitudinal method, it has remained open to criticism. Freedman, perhaps the most vocal critic of the general aggression research field, has stated: "Only experimental research can provide a definitive answer to the question of whether violent video games cause aggression . . . To determine whether exposure to violent video games causes aggression, the ideal experiment would randomly assign children to playing or not playing video games containing violence" (Freedman, 2002). He has further found fault with studies because of their short durations.

Design and Procedures

A two-wave, field-based panel study with a control group was used to test our hypotheses. Participants were recruited and assigned randomly to a treatment group that received the game, or a control group that did not. Subjects in the treatment condition were mailed a copy of the game, along with instructions and time diaries to record their playing time. Game play then lasted for one month. All pre-test and post-test measures were collected within one week of the beginning and end of the stimulus period.

Participants

Participants were solicited via online message boards on both game and general interest web sites. A total of 521 participants (439 male, 80 female, 2 unstated) completed both waves of the study. The treatment group contained 302 final participants and the control group 219. As incentives, members of the treatment group were given a free copy of the game (retail value $50), and members of the control group were promised entry into a generous raffle for other free copies and prizes. Retention rates were 84% and 49%, respectively. This difference is due to the slightly different incentives for participation, which was unavoidable. Despite the different retention rates, the treatment and control groups did not differ significantly on any of the demographic measures, nor did the participants who dropped out. The only exceptions were income and the amount of previous online game play. The control group was slightly better off than the treatment group (t (514) = 2.184, $p < .029$), and the treatment group had more experience playing online games. To control for this, both variables were included as controls in the analysis below. Most importantly, we have no reason to believe that the different motivational levels between the two groups would affect the dependent variables of interest (aggression and fear). Excepting income, the two groups did not differ demographically: Study-wide, the mean age was 27.7 years, ranging from a low of 14 to a high of 68. The sample was also predominantly white (85%), male (84%), educated and middle class; its median educational level was an Associate's degree/specialized technical training; and the median annual income was near the top of the $30,000-$40,000 bracket.

Measurement

Self-reported questionnaires were completed pre- and post-stimulus online via a secure web site, and included a range of demographic, behavioral and personality variables.

"Mean" or "dangerous" world perceptions were taken from Anderson and Dill's study (2000), and were used to create two scales. The first, representing safety feelings, was a two-item scale created by the questions "How safe would you feel walking alone at night in an average suburban setting?" and "How safe would you feel walking alone at night on a typical campus?" The scale therefore ranged from two to 14, with higher values indicating decreasing feelings of safety (alpha = .81). The second scale, representing perceptions of crime likelihood, was a four-item scale created by questions that asked participants to estimate the percentage chances of four crime events: "What do you think the chances are that any one person will be robbed by someone with a weapon in their lifetime?" ". . . physically assaulted by a stranger in their lifetime?" ". . . will be murdered?" and ". . . any one woman will be raped in her lifetime?" This last scale ranged from 0 to 400 (alpha = .90).

Aggressive cognitions were measured with the Normative Beliefs in Aggression (NOBAGS) general scale (L. Rowell Huesmann & Guerra, 1997). NOBAGS ranges from eight to 32, with higher values indicating larger normative beliefs about the acceptability of aggression (alpha = .92). The Buss and Perry AQ scales (1992) were used to measure physical and verbal aggression. The physical aggression scale contained nine items, and ranged from nine to 45, with higher values indicating more physical aggression (alpha = .81). The verbal aggression scale contained five items, and ranged from five to 25, with higher values indicating more verbal aggression (alpha = .69).

RESULTS

In order to assess the differences between aggression measures on pre and post-tests, a new set of variables was created by subtracting pre-test scores from post-test scores. Scores for these five new variables (safety feelings and crime likelihood, NOBAGS, physical aggression, verbal aggression,) show changes from pre-test to post-test: Positive scores indicate that the measures increased from time 1 to time 2.

Multivariate analyses

For each of the five measures, we present the results of a linear regression model, enabling us to control for income and prior play while determining the impact of the treatment condition. Again, positive scores mean that the measure increased from time 1 to time 2, and negative numbers indicate a decrease. The results are presented in Table 1.

Table 1

Regression Equations Predicting Differences on Five Scales

	Safety	Crime	NOBAGS	Physical	Verbal
Income	-.019	-1.115	-.003	-.070	-.084**
Months playing MMRPGs	-.025**	.006	.001	-.010	-.009
Game play (0-1)	.508***	9.647	-.102	-.486	.063
Model fit					
R^2	.019***	.008	.000	.007	.010

Note. Entries are unstandardized coefficients from OLS regressions. *n* = 521.
Dependent variable ranges:
Safety feelings, 2-14; Crime likelihood, 0-400; Normative beliefs in aggression (NOBAGS), 8-32; Physical aggression, 9-45; Verbal aggression, 5-25.
Explanation of independent variables:
Income is reported as annual income measured by a nine-level variable ranging from $0 annual income to $80,000/year and up.
Game play is a dummy variable in which the control condition (no play) = 0 and the treatment condition = 1.
$* p < .10$. $** p < .05$. $*** p < .025$.

The results indicate that the treatment condition had an impact on the cultivation-based perception measures, but not on the aggressive cognition behaviors suggested by the GAM. In other words, playing the game was enough to change players' perceptions of how mean and scary the real world was, but not to change their own behaviors. Each result is explained below.

H_1: Game play will increase perceptions of a "mean" or "dangerous" world.

For safety feelings, the results suggest that prior months playing MMRPGs and the treatment condition exerted significant influences on the participants' safety feelings. Previous experience with similar games made participants feel less fearful of walking alone at night. This finding was substantively small, but statistically strong. The game condition itself was both highly significant and substantively large, with participants in the treatment group much more likely to feel less safe than participants in the control condition. For crime likelihood, none of the variables were significant predictors, although the finding for the treatment condition approached significance ($p = .12$). Taken together, these two results partially support the first hypothesis, and suggest that a cultivation effect did occur.

H_2: Game play will increase aggressive cognitions.

The results did not support the contention that the treatment condition would increase subjects' normative beliefs in aggression (NOBAGS). Instead, the variables were far from significant, and the model itself explained none of the variance found. Simply playing the game did not lead participants to believe that aggressive actions were more normal or acceptable.

H_3: Game play will increase physical aggression.

Similarly, the results did not support the contention that the treatment condition would increase subjects' levels of physical aggression. Again, the variables were non-significant, and explained little variance. The coefficient for the treatment condition approached significance ($p = .189$), but indicated a reduction in physical aggression due to game play, rather than the predicted increase.

RQ_1: How will game play affect verbal aggression?

Game play had no impact on verbal aggression. Only income was a significant predictor, with better-off subjects less likely to engage in verbal aggression, regardless of condition.

Finally, to assess the within-subjects impact of playing time on gamers' aggression and cultivation scores, we analyzed the treatment group more closely. Table 2 presents summaries of linear regressions predicting differences in scores on all five of the above scales, for participants in the game condition only.

Table 2

Regression Equations Predicting Differences on All Five Scales for Participants in the Game Condition

	Safety	Crime	NOBAGS	Physical	Verbal
Background variables					
Age	-.003	.180	-.021	-.058*	-.018
Gender (0-1)	.185	-1.880	-.513	.099	.986
Months playing MMRPGs	-.032**	-.059	-.004	-.028	.003
Playing time					
Total AC2 hours	*.000*	*.147**	*.003*	*.002*	*.003*
Model fit					
R^2	.018	.011	.011	.020	.025

Note. Entries are unstandardized coefficients from OLS regressions. $n = 302$.
Gender is a dummy variable in which male = 0 and female = 1.
* $p < .10$. ** $p < .05$. *** $p < .025$.

Overall, the results indicate that playing time was not a significant predictor of participants' scores on the aggression and cultivation measures with the exception of crime likelihood, which was marginally significant; those who had played MMRPGs before had lower levels of safety concerns than those new to them. This suggests that as one plays longer, cultivation effects may wear off. In general, though, the amount of time spent playing the game had very little, if any, impact on gamers' levels of aggression or fear. Similarly, our findings suggest that gamers' background had very little impact on aggression and cultivation variables. Only age (marginally) and prior months playing MMRPGs were found to be significant predictors of physical aggression and safety feelings, respectively.

DISCUSSION

Our one-month longitudinal study of an MMRPG found that, contrary to some expectations, there were no effects associated with aggression caused by this violent game. Furthermore, consistent with expectations from the participant observation study, verbal aggression was found to remain unchanged after the treatment. Still, it should be noted that the "mean world" hypotheses were partially supported in that crime likelihood increased marginally as participants played more of the game, and fears about safety feelings increased with mere exposure to the game. Those who played *AC2* more were likely to report living in a more dangerous world, and those who played any amount of time were more fearful about walking alone at night. Therefore, an increased exposure to the game might be a small, but significant risk factor for fearfulness. Still, since prior play lessened this effect, we can speculate that the impact might disappear over a longer time span. In sum, a one-month exposure to a violent online MMRPG was found to have no impact on normative beliefs about aggression or on verbal and physical aggression, but did (at least temporarily) decrease the sense of real-world safety among players.

These findings do not offer strong support for the predictions suggested by the GAM (C. A. Anderson & Bushman, 2001) and other theoretical models postulating that violent games directly increase aggressive cognitions, but did support those suggested by cultivation theory. The key implications relate to the theoretical approach used by researchers, to violent games as a cause of aggression and fear and to the duration of effects in the research more generally.

First, our results lead to speculation about the appropriate theoretical model to use for video game research. Some researchers have questioned the appropriateness of models based on social learning theory, such as the GAM, for game research on both theoretical and laboratory issues. By borrowing a theoretical framework that is appropriate for the study of more passive media such as television, the concern is that new media such as games may be functionally nonequivalent enough to cause a problem. Sherry, for example, suggests that because the typical game experience is highly social, the dominant format of laboratory studies on solo game players playing against a computer may be testing for an effect that does not occur in natural settings (J. Sherry, 2003; J. Sherry & Lucas, 2003). Others think that the model should hold and that any effects should be stronger because the interaction is simply more engaging and therefore affecting than television (C. A. Anderson & Dill, 2000). Our suggestion is that social learning theory-based effects can occur in three ways through game play. First, players may observe and potentially model the behavior of computer-driven characters. This kind of observational learning is what has been tested in prior studies, and is applicable only to games played alone. Secondly, players in a multiplayer game such as an MMRPG will also observe and potentially model the behaviors of other players in the virtual space.

Because the content is necessarily interactions—however mediated—with other real people, effects should be stronger than with the more passive observation theorized for television. This is especially salient because as games become more and more multiplayer, game content is driven more and more by actions among the players themselves. Lastly, social learning may occur from play that occurs in virtual space and also in physical proximity, as in an arcade, home or office, in Internet cafés, or in LAN tournaments. In this case, the in-game interactions and observations occur in parallel with real-world ones. Our own results speak primarily to a combination of the first two possibilities in that there is content driven by the computer and by other players, but most play occurs in physical isolation. Our nearly total lack of findings using the GAM suggests either that social learning based models may not be appropriate for these various play contexts, or, more likely, that there are simply no aggression effects for this type of game. Future research should control for these three play contexts.

Second, our results support the contention of researchers who suggest that some violent games do not necessarily lead to increased real-world aggression. The heightened levels of concern following in the wake of the Columbine and Paducah might be more epiphenomenally than globally warranted. However, because our method did not concentrate solely on younger teenagers, we cannot say that teenagers might not experience differential effects. We can say that there is not as much concern warranted for this type of game among a young adult or adult population. This is consistent with media violence research which has found significantly smaller effects among older populations with more developed cognitions (Paik & Comstock, 1994). The cultivation findings suggest that the game world does in fact have an impact on players' perceptions of the real world. Our conclusion is that immersive, long-term games such as *AC2* can play a temporary role in changing players' perceptions of the world, but do not actually change their aggressive behaviors.

Third, findings from prior short-term effects research indicate that the length of exposure to violent video games matters. Indeed, the earlier comparison between a study with a 10-minute stimulus and a study with a 75-minute stimulus of the same violent game (Ballard & Weist, 1995; Hoffman, 1995) indicated that the initial effects wear out after a short period of time. What happens when players participate in video game violence for longer than one or two hours? Our study duration of one month is the longest to date by far, and so offers new insight into the duration of effects. If the effects of some games wear out after an hour, and remain very small after a month, the duration of strong effects becomes suspect. These findings cannot, of course, speak to any longer-term processes that may be at work, as we have no evidence about the possible cumulative impact of exposure to violent video games over several months or years. This may be especially important given the observed trends about the increasingly violent nature of video games played by today's gamers (Knowlee et al., 2001; Thompson & Haninger, 2001). Thus, it is vital to examine whether the children who are currently playing them will grow up to be more aggressive adults, a hypothesis that has received empirical support in the case of television violence (L. Huesmann, 1999; L. R. Huesmann, Moise-Titus, Podolski, & Eron, 2003).

There are policy implications to be drawn from the findings. The results show that one type of violent game is having a very small impact on young adults and adults. Other types and contexts might be having larger ones. If the content, context and play length have some bearing on the effects, policy makers should seek a greater understanding of the games they are debating. It may be that both the attackers and defenders of the industry's various products are operating without enough information, and are instead both arguing for blanket approaches to what is likely a more complicated phenomenon. Researchers can play an important role by refining our gross-level understanding of violent game effects into something more rigorous.

On that point, we noted earlier the inappropriateness of research that made claims about what "games" or "violent games" do to people without accounting for the content of game play. Our own results speak to violent role-playing games that are played online. Such qualification might be less exciting than stating something more global, but we feel tougher qualification is consistent with the rigor that the field ought to employ. Simply put, all games are different and each should be accounted for by a thorough examination of content and setting to determine representativeness and generalizability. Our participant observation has taught us that the style of game, the place it is played, and the interactions with other players will be crucial variables in determining the impact of a given title. For example, before experiencing the game, we would not have predicted that verbal aggression would stay constant or decrease. Other games with a similarly positive flow of verbal traffic might now be hypothesized to yield similar effects. Additionally, our study measured changes in physically separated individuals through the use of a networked PC. The effects might be different for people using a console system or an arcade machine, or for those networked in an office or in an Internet café. Future studies should consider the varying social contexts of game play: solo or networked, at home, school, or work, in an arcade, on a cell phone, with a few others, with a small crowd, or online with several thousand others. Whether other players are opponents or collaborators might also have an important impact. Only when researchers begin to break down and isolate these variables will we be able to confidently assess the impact of anything so global as "video games."

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CTNP

Liberating Friendships Through IM? Examining the Relationship Between Instant Messaging and Intimacy

Yifeng Hu, Vivian Smith, Nalova Westbrook, Jackie Fowler Wood
College of Communications
The Pennsylvania State University

Yifeng Hu
201 Vairo Blvd. Apt. 112A,
State College, PA 16803
(814) 235-7458
yuh110@psu.edu

Jung-Sook Lee Competition

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INTRODUCTION

Instant Messaging (IM) offers two functions unique to Computer-Mediated-Communication (CMC): the ability to know who is also connected to the shared space, or buddy list, and the ability to conduct a text-based conversation in real time. Increasingly, IM software features audio components as well. IM has proven to be one of the most popular online applications, resulting in dramatically increased Internet connection times nation wide. This phenomenon fosters a sense of "online community" that perhaps no other application has done (Alvestrand, 2002).

In considering possible affective and cognitive implications of increased popularity of IM nationwide, one population may be more affected than others- college students. Statistics show that college students actively access the Internet and utilize IM software more than the overall US population. According to a survey released by the Pew Internet & American Life Project, college students are among the heaviest users of IM in the United States. The Internet has become an integral part of college life, and not just for studying. The survey of college students across the country found that 86% use the Internet, compared with 59% of the overall US population. Moreover, college Internet users are heavier users of instant messaging than those in the overall online population. While only half of all Internet users have sent instant messages, nearly three quarters of college Internet users have done so. College Internet users are twice as likely as the average Internet use to use instant messaging on any given day. 85% of college students consider the Internet an easy, convenient choice for communicating with friends, and, furthermore, 72% report that most of their online communication is with friends (Jones, et al. 2002).

These statistics show that college students actively utilize IM more than the overall U.S. population, so the proposed influences of IM use on a sense of "on-line community" would be most appropriately examined within the social context. To date, little research examines the relationship between IM use in college students and their social connectedness. Does this real-time CMC application contribute to a sense of closeness? Because over two-thirds of college students report that most of their on-line communication is with friends, this specific relationship is key in examining "IM intimacy." This study examines the relationship between IM use and intimacy in friendships.

Some research focuses on the social and organizational aspects of IM use, but very little examines the effects on an individual level. From an organizational perspective, research suggests that IM supports a variety of informal communication tasks in the workplace (Nardi, Whittacker, & Bradner, 2000). Furthermore, the ability for interactive text in IM is expected to support informal, spontaneous, and opportunistic communication makes it particularly suitable for geographically distributed teams (Herbsleb, Atkins, Boyer, Handel, & Finholt, 2002). This casual environment can create a relaxed atmosphere conducive to intimate exchanges.

I. Literature Review/Rationale

Computer-Mediated-Communication (CMC)

Because IM is a relatively new type of CMC, naturally prior CMC research should be reviewed first. Early relationship theorists the Palo Alto Group proposed five basic communication principles (Watzlawick, Beavin, & Jackson, 1967). Two of these principles prove to be very useful in this research. The second principle suggests that every conversation involves both content messages and relationship messages. The fourth principle states that people use both digital and analogic codes in communication. According to the Palo Alto Group, while people are communicating content digitally, they are commenting about their relationship analogically. Based on this conclusion, CMC/IM use, consisting solely content/ digital communication, would not be a good channel for building intimate relationships. Can communication media lacking in relational/ analogic signs promote good relationship?

In previous CMC studies, two conflicting approaches to online relationships emerge: lost and liberation. Lost approach regards online relationships as shallow, impersonal, and often hostile. This approach also suggests that only the illusion of community can be created in cyberspace (e.g., Beninger, 1987; Heim, 1992). Critics of relationship lost argue that CMC can, to a large degree, liberate relationships from the confines of physical locality and thus create opportunities for new, but genuine, interpersonal relationships and communities (e.g., Pool, 1983; Rheingold, 1993).

The main idea of lost perspective attests that people get significantly less information from CMC than from Face-To-Face (FTF) communication. Traditional personal relationship theory suggests that the relative lack of social cues and the potential for feedback delays, for example, should lead both to higher uncertainty and more difficulty in reducing uncertainty about how to behave, how the partner will behave, and how to explain the partner's behavior (Parks & Floyd, 1996). The inability to reduce uncertainty prevents, or at least retards, the development of interpersonal relationships, according to uncertainty reduction theory (e.g., Parks & Adelman, 1983). Existing theories of relational development pose several other challenges for online relationships. For example, most theories underscore the importance of physical appearance and physical attraction, especially in the development of romantic relationships (e.g., Berscheid & Walster, 1978). Online communication, therefore, is generally assumed to lack many of the things emphasized in traditional discussions of relationship development (Lea & Spears, 1995).

Next, other theories appear to support the relationship lost approach. For example, reduced-cues perspective predicts that positive relationships should occur infrequently rather than frequently when communicating by computer (Parks & Floyd, 1996). Social cues are filtered out in online settings (Culnan & Markus, 1987). Relational cues emanating from the physical context are missing, as are nonverbal cues regarding vocal qualities, bodily movement, facial expressions, and physical appearance.

Both social presence theory (Short, Williams, & Christie, 1976; Rice, 1987; Rice & Love, 1987) and social context cues theory (Sproull & Kiesler, 1991) demonstrate that the reduction in contextual, visual, and aural should cause communication in online settings to be more impersonal and nonconforming than communication in FTF settings. Both theories predict that participants' awareness of and sensitivity to others will be related to the number of channels or codes available for linking them. These theories also suggest that FTF communication breeds greater awareness and sensitivity.

Next, media richness theory suggests that CMC has a narrower bandwidth and less information richness than FTF communication (Daft & Lengel, 1984). Daft and Lengel argue that different communication channels have different capabilities of processing information; while rich media have the greatest capacity to communicate shared meanings, lean media have the least capacity. The level of media richness associated with a particular communication technology can be evaluated in terms of whether the technology allows for an instant feedback mechanism, the transmission of multiple cues (e.g., body language, voice inflection), the use of natural language, and a personal focus. According to this theory, FTF communication is more appropriate than CMC for socially sensitive or intellectually difficult information, and for persuading, bargaining, or getting to know someone. CMC are deemed more appropriate for task-oriented activities such as exchanging information or asking questions (e.g., Rice, 1987). In other words, CMC is a weak medium through which to develop interpersonal relationships.

Walther's social information-processing theory is very representative among many previous studies supporting the liberation approach. This theory states that because people need to manage uncertainty and develop rapport, they will adapt the textual cues to meet their needs when faced with a channel that does not carry visual and aural cues (Walther, 1992). Walther has shown that over time, e-mail provides no less an opportunity than FTF communication to form positive interpersonal relationships and impressions. The important point is not that CMC is unable to convey relational and personal information, but rather that it may take longer to do so (Park & Floyd, 1996).

More recently, several reports have already illustrated how people overcome the technical limitations of CMC. For example, one could coin a word or phrase to imitate facial expressions and paralinguistic features of conversation (specifically, ":)") to indicate a smile. These typed expressions are also known as "emoticons." CMC users also overcome the technical limitation of this media by supplementing CMC with additional channels of communication, such as telephone, post-mail, and FTF contact (e.g., Ogan, 1993). Through these examples, limitations of CMC may be overcome.

Wysocki (1996) states in her dissertation that while some might think that relationships based on CMC are not authentic or real relationships, "they actually become more real or authentic because the participating individuals can push through identities and develop a relationships." In a study of romantic relationship on ICQ, one kind of IM software, Hu (2002) suggests that two people can develop romantic relationship in ICQ relatively easily. This assertion often involves three formation models, namely, care-move, imagine-love, and flirt-attract. These findings suggest that interpersonal relationships can, in fact, be liberated in the context of CMC.

Further research supports that, through CMC, strong interpersonal relationships can develop. Jerry Everard (2000) gives us a living example. He finds that he feels more like meeting an old friend than meeting a stranger when processing an online meeting. "There is a sense of shared authenticity. People can form a closer sense of community identification online than they often can with people across the street." (Page. 126)

IM Use and Intimacy

Most studies that currently examine IM on an individual level explore use patterns and gratifications/motivations of IM use (Leung, 2001; Schiano, Chen, Ginsberg, Gretarsdottir, Huddleston, &

Isaacs, 2002). However, little research specially addresses the relationship between IM use and intimacy, one concept of central importance in human relationships (Fisher & Stricker, 1982).

Intimacy is a very complex and heterogeneous concept that has generated a variety of definitions. These definitions can be generalized into two broad categories. The first is "the sharing of close feelings between two people" (e.g., Erber & Erber, 2001; Frank, 1996; Lerner, 1990; McAdams, 1989; Piorkowski, 1994). The second is "the experience of another's wholeness" (e.g., Dowrick, 1991; Bennett, 2000; Wilner, 1982). To Tolstedt and Stokes (1983), three important types of intimacy emerge: verbal, affective, and physical. Most operational definitions of intimacy used in research have emphasized the verbal aspects of intimacy – that is, self-disclosure. Social Penetration Theory (Altman, 1973; Altman & Taylor, 1973) views various aspects of self-disclosure as important variables in the development of intimacy. Intimacy that is reflected in overt verbal exchange could be called verbal intimacy. The second type of intimacy, affective intimacy, reflects feelings of closeness and emotional bonding, including intensity of liking, moral support, and ability to tolerate flaws in the significant other. Finally, physical intimacy encompasses sex and other physical expressions of love.

II. Research Question/Hypothesis

Because the majority of IM research focuses on use patterns and gratifications, the need for a closer examination of the interpersonal effects of IM is merited. Studies on other related, real-time communication technologies, like the telephone and cell phones, which examine their relationship with intimacy are useful points of reference (Leung & Wei, 2000). However, because IM is unique in its real-time, text messaging capacity, this study pulls together areas in which research overall is lacking, and attempts to give new perspectives to traditional human communication study.

Based on the rising of IM use among college students, the research question is: *For college students, controlling for gender and age, what is the relationship between the amount of IM use and intimacy between friends?* Based on prior research, we expect to find support for the liberation perspective of IM use. Trends show that IM users are increasingly turning to textual cues, such as "emoticons," to supplement the lack of visual and aural cues (Walther, 1992; Ogan, 1993). These adaptations help overcome the barriers said to limit CMC to shallow, superficial conversations presented in the relationship lost perspective. Furthermore, U.S. college campuses are becoming increasingly global environments where families are separated and friendships span worldwide. The hypothesis is: *The amount of IM use will be positively correlated with intimacy between friends.* This research design attempts to examine this relationship.

METHODS

Participants

Participants in the study were 138 college students at a large university in the northeastern United States. Every third student exiting one of three central campus buildings was asked to fill out a short survey on IM at the university. The three buildings were selected based on central location and decentralized patronage (populated by a variety of majors and ages). The buildings were the student union center, main campus library, and graduate school lounge and café (often populated by both undergraduate and graduate students). The response rate was 58.9 %. Once data collection was complete (N=138), participants who indicated they did not use IM software to talk with friends were excluded from analysis.

Procedure

We administered surveys in teams of two to help maintain consistent count in heavy traffic areas. Students who agreed to participate in the survey were asked to read and sign an informed consent form that explained that the survey was part of a communication course project (Appendix 2). The two-page, 15-question survey (Appendix 1) that contained measures for amount IM (defined in the survey as "AOL Instant Messenger, MSN Messenger, ICQ, etc."), location of IM use, and intimacy among "IM friends" was administered over a four-day period on campus. Data was gathered on a Saturday, Sunday, Monday, and Tuesday in early November. Data was also gathered during morning, midday, afternoon, and evening hours.

Independent Variable Measures

The survey contained measures for IM use amount (actual use and idle time on the program) and the location of IM use. To measure IM use amount, participants were asked to estimate amount of time per day spent with IM software idle and the amount of time spent actually talking with friends (the need for this distinction became apparent in the pretest). Participants were also asked to estimate the frequency with which they use IM at home (or dorm), computer lab, or at work (or the office).

Dependent Variable Measures

The survey also contained measures for affective, verbal, and social (Miller's Social Intimacy Scale) intimacy. Tolstedt and Stokes (1983) describe intimacy, the dependent variable, in three parts: verbal (self-disclosure), affective (feelings of closeness and emotional bonding), and physical intimacy (physical expressions of love, such as kissing, hugging, and sex). Because this research examines intimacy via IM, and because CMC does not require shared physical space between individuals engaged in conversation, physical intimacy was excluded from this study. Additionally, this research focuses on platonic relationships, in which physical intimacy does not play a major role. As an alternative, three categories of intimacy questions were employed: verbal intimacy, affective intimacy, and questions from the Miller Social Intimacy Scale (MSIS) (Tzeng, C.S. 1993).

Verbal intimacy items (question #7 a-g), addressing conversation content or self-disclosure, were based on a 10-point frequency scale anchored by never (1) and almost always (10). Question #8c, based on a Likert scale was reversed coded. This item also addressed verbal intimacy, however, after running a factor analysis, this item was removed from analysis. Affective intimacy items (questions #6 a-g, #8 a, b, d), addressing feelings of proximity, understanding, and trust, were operationalized by a 10-point Likert scale ranged from strongly disagree (1) to strongly agree (10). Please note that #6c and #6g were reversed coded. #6g was also eliminated after running a factor analysis. Finally, six questions from MSIS were included. These 10-point frequency scale items range from never (1) to almost always (10), and they address both affective and verbal intimacy. From this point on, these items will be referred to as social intimacy. Age and gender were recorded as control variables.

Data Analytical Techniques

Descriptive statistics included frequency distributions of age, gender, amount and location of IM use, and computer ownership. Factor analysis was used to determine if any natural correlations existed between the data collected for intimacy measures. Cronbach's alpha was used to confirm a strong relationship between intimacy factors. Regression analysis was used to examine the relationship between IM use (continuous variable) and intimacy (continuous variable).

RESULTS

I. Univariate Analysis

Distributions

From our sample of 138 participants, 89% acknowledged that they use IM (N = 123). Sixty-four males and 55 females participated in this study (Table 1). Only 4.39% of the students reported not owning a computer

(N = 119).The average participant's age was 21.4 years old with a standard deviation of 3.94 (Table 2) Participants reported that they use IM at home (7.47) more than at work (2.18) or in the computer lab (3.70) (Tables 3-5). Typically students allowed the IM software to run over 10 hours per day, while only using IM for approximately 2 hours (Tables 6-7). Students also reported using e-mail (8.33) more than telephones (6.11) and cellular phones (6.10) (Tables 8-13). When communicating with friends, the pattern was the same: e-mail (7.08), telephones (5.71) and cellular phones (5.99). The only difference is that students use cellular phones more than regular telephones to talk to their friends.

The average score for verbal intimacy was 57.4% (40.16) with a standard deviation of 9.49 (Table 14). On a scale of 1 to 10 (where 10 = almost always), participants frequently talked about "what happened" (7.80), "the latest social gathering" (7.24), "significant others" (5.98) and "love/sex" (5.75) during their IM conversations (see Tables 15-22).

The average score for affective intimacy was 53.7% (48.33) with a standard deviation of 12.11 (Table 14).On a scale of 1 to 10 (where 10 = strongly agree), participants acknowledged that they could "talk about anything" (6.0) and that they wanted to see their IM friend "face-to-face" (5.32) after an IM conversation (Tables 23-32).

The average score for social intimacy was 68.1% with a standard deviation of 9.58 (Table 14). On a scale of 1 to 10 (where 10 = almost always), when participants use IM to talk to their friends, they frequently felt like they should be encouraging and supportive to their friends (7.98) and their friends should be encouraging, also (6.52) (Tables 33-39). In addition, participants frequently felt like they should listen to their friends' very personal disclosures (6.89) and that their friendships were important in their life (7.37) (Tables 33-39).

Internal Consistency

All three groupings of intimacy displayed good internal consistency (for verbal intimacy, Chronbach's $\alpha = .74$; for affective intimacy, Chronbach's $\alpha = .79$; for social intimacy, Chronbach's $\alpha = .90$). Because each intimacy factor focuses on a different aspect of intimacy, as a result, they were measured using different scales. For this reason, all three intimacy factors remained independent of each other.

II. Bivariate Analysis

Hypothesis

Linear regression was used to test our hypothesis that predicts a positive relationship between IM use and intimacy. Our hypothesis is supported by our data (Table 40). As IM use increases, verbal intimacy increases ($\beta = 1.88$, $p < .0001$) (Table 41). This implies that as individuals spend more time communicated via IM, there will be an increase in their type of self-disclosure. They will not only discuss light topics such as the latest social gathering, but also personal topics that included family issues and fears.

As IM use increases, affective intimacy increases ($\beta = 1.85$, $p < .0008$) (Table 42). This finding suggests that, with an increase in IM use, there will be an increase in sentimental and longing feelings towards friends.

As IM use increases, social intimacy increases ($\beta = 1.35$, $p < .003$) (Table 43). This implies that as students use IM more, they will more frequently experience intimate feelings as well as a desire to self-disclose to their friends.

We recognize that age and gender could serve as alternative explanations to our findings. Nevertheless, age and gender did not have an effect after running a fit model analysis in JMP (Tables 44-49). The relationship between IM use and affective, verbal and social intimacy remained significant (Tables 44-49).

Exploratory Analysis

While examining whether the participants' level of intimacy would increase in relationship to the location of IM use, we found significant relationships between the three categories of intimacy and IM use at home (Tables 53-55). As participants' frequency of using IM at home moved closer to 10 or "almost always", their levels of affective ($\beta = 0.90$, $p < .02$), verbal ($\beta = 0.92$, $p < .001$) and social intimacy ($\beta = 0.82$, $p < .006$) also increased. There was no significant relationship between intimacy and IM use at work or in a computer lab.

In order to examine actual IM use as distinct categories, we collapsed in into three categories of low, moderate and high use. The median of actual IM use (1.0 hours) represented moderate IM use. Any responses below "1.0" were categorized as low IM use. Responses of "2.0" or more were categorized as high IM use. We ran oneway ANOVA analyses for IM use and age, IM use and intimacy, and IM use and other media use.

In our analysis, the average high user is 20 years-old, the moderate user is 21 years-old, and the low user is 24 years-old ($F = 8.67$, $p < .0003$) (Table 50). When examining the relationship between the three levels of IM use and telephone use, moderate (6.86) and low IM users (5.79) have higher levels of telephone use than high IM users (5.56) ($F = 3.41$; $p < .036$) (Table 51). There was no significant relationship between the ordinal IM use variable and e-mail or cellular phone use. On the other hand, the findings in a bivariate fit of e-mail use with friends by age suggest that e-mail use with friends increases with age ($\beta = .189$, $p < .0001$) (Table 52). Although we expected low IM users to exhibit higher telephone use than moderate users, we could argue that the older student population consists of mainly graduate students who may prefer e-mail to telephones because of cost and time.

DISCUSSION

Our results lend support to our hypothesis that there is a positive relationship between IM use and affective, verbal and social intimacy (Tolstedt & Stokes, 1983; Tzeng, 1993). How does this correlation relate to our theoretical foundations? Based on the relationship lost perspective of CMC, some scholars (e.g., Beninger, 1987; Heim, 1992) would argue that heavy IM use supports impersonal interactions and may, in fact, deter intimate exchanges. But our findings are consistent with the liberation position of CMC relationships, and suggest that IM promotes rather than hinders intimacy. What is more, our research indicates that frequent conversation via IM actually encourages the desire to meet face-to-face. For example, participants who reported heavy IM use, more strongly agreed with the following statement in our questionnaire (item #8b under affective intimacy), "after talking with my friends on IM, I want to see them face-to-face." This finding implies that online communication can reinforce face-to-face interaction.

One of the reasons why our hypothesis is heavily supported may be a result of IM being an inexpensive medium of communication for college students, compared to other forms of media such as the telephone (Grinter, & Eldridge, 2001). In many college communities, internet access is made widely available to students and faculty (Jones, et al. 2002).

Beyond economic factors, consideration of some of the attributes of IM could also explain our findings. Near synchronous and text-based, IM may be administered in one-on-one or in group communication settings, virtually combining features of the telephone, e-mail and chat rooms in to one (Nardi, Whitaker, & Bradner, 2000).

How attributes of IM could promote intimacy between college student users and their friends then seems quite apparent. IM, even with the advent of audio features, departs from the telephone because it is still largely a text-based medium. There are two competing perspectives on the outcomes of text-messaging. On the one hand, communication through online media may shorten text messages between the sender and receiver thereby inhibiting growth of friendships. On the other hand, text-messaging allows for students to more carefully craft messages, than say, for instance, telephone or face-to-face communication—indicative of a situation that encourages intimate exchange (Lenhart, Rainie, & Lewis, et al. 2001).

Compared to e-mail, IM may be understood as an accelerated version of the online technology. But in near real-time mode, what also encourages IM instead of chat rooms, for example, is privacy, as available in interpersonal communication on the telephone, through e-mail or even in FTF encounters.

The notion of privacy, or a private atmosphere, seems to play a central role in the level of intimacy exposed in IM communication. We must also take into account the environment in which people use IM. One theory in interpersonal relationships that may be applied to IM use is that the level of self-disclosure is based, to some extent, on its surroundings (Fitzpatrick, 1988). Research has found that many people often use IM at home, late at night, and separately, where they are vulnerable and lonely (Hu, 2002). Consequently, our research show that more IM users disclose personal, private matters at home than they would elsewhere, which suggests that the context of IM heavily contributes to the relationship between IM and intimacy in college students groups.

The implications of our research suggest that colleges and universities could use IM to appeal to potential college students. That students enhance their relationships with friends through IM may also be applied to faculty and family members. Our research addresses the rapport between college students and their friends. But consider that real time communication is on the rise. Although e-mail and message boards are the dominant modes of online communication between students and faculty, growth in IM among college students leads one to believe that the medium may also contribute to student-faculty relationships. Family members, knowledgeable of their college children's changing communication habits, may opt for adaptation of the technology as well. Parents of college students are reported to use IM considerably less than their children who are in college, but growth in IM among older demographic populations may be imminent (Lenhart, Rainie, & Lewis, et al. 2001).

Beyond this, our research tells advertisers to increasingly target college students who are using IM. From a study conducted by Lenhart, Rainie, & Lewis, et al. (2001), *Teenage Life Online: The rise of the instant-message generation and the Internet's impact on friendships and family relationships,* it is clear that the up-and-coming generation, of online users rely on IM for communication with friends and family. With that in mind, manufacturers of IM could tailor the medium more for the college user. Suggestions for such advancements include a variety of interfaces from which the college student might choose to develop a personal setting, or manufacturers may improve IM with increased emoticons.

Limitations of our study include those often understood to be shortcomings of survey research, namely recall of our participants and our inability to show causation. In conjunction, our intimacy measures could be influenced by the mood of our participants and the friends about whom each participant was thinking at the time of our survey. We also ask our participants to generalize their friendships, albeit on IM. Level and type of friendship are not taken into account in our questionnaire, which hinders us from extending our findings to the variety of friends with which college students might communicate when using IM.

Therefore, our study could benefit from future research in which we address friendship at a micro level. Such an exploration should also include whether intimacy between friends has already been established before IM. Of course, a counter argument to that point is many college students might increasingly forge friendships online first. Nonetheless, we recognize that a stronger conceptualization of friends further supports our research. In addition to observing intimacy before IM use, establishing causation in our research will require at least an experiment or a longitudinal study, as well as the degree to which we can rule out confounding or third variables similar to friendship type.

Another area for further exploration is a comparison of IM to other media in order to better understand the extent to which IM contributes to intimacy between college students and their friends. According to Jones et al. (2002), IM accounts for 29% of online communication between college students and their friends, whereas e-mail accounts for 62%. Considering the popularity of other forms of online communication, and the relative newness of IM, other investigations should compare intimacy to various media. While our research focuses on intimacy exclusively within the context of IM, future research could examine the relationship between IM, e-mail, telephones, and cellular phones and intimacy in general.

Additionally, more demographic populations should be considered. When controlling for gender and age, the relationship between IM and intimacy was unaffected; but other demographic variables such as race, nationality, socio-economic status may affect the relationship otherwise.

Lastly, we suspect that additional methods of our dependent variable, in particular, a content or textual analysis, could support out results even more. We asked participants to generalize about the content of their IM conversations. However, we may be able to support participants' responses with actual records of their conversations on IM. This, as well as other methodological approaches, may enhance our research.

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APPENDIX 1 INSTANT MESSENGER USE

****THANK YOU FOR TAKING A FEW MINUTES TO FILL OUT THIS SURVEY CAREFULLY AND COMPLETELY.****

1. Do you ever go on-line? Y N
    a. If **no**, go to number 10.
    b. If yes, continue with the next question.
2. Have you ever used any Instant Messenger (IM) software (e.g. AOL Instant Messenger [AIM], MSN Messenger, ICQ, etc.)? Y N
    a. If **no**, go to number 11.
    b. If yes, continue with the next question.
3. **PLEASE ANSWER THE FOLLOWING.**
    a. On average, how many hours per day do you have your IM software on your computer? (0-24) _____ hrs
    b. On average, how many hours per day do you **actually** use IM (versus just having the program open on your desktop)? (0-24) _____ hrs
4. **PLEASE RATE THE FOLLOWING.**

I use IM at/in:	never ... some of the time ... almost always
a. Home/Dorm	1......2......3......4......5......6......7......8......9......10
b. Computer Lab	1......2......3......4......5......6......7......8......9......10
c. Work/Office	1......2......3......4......5......6......7......8......9......10

    d. Other places (please specify): ______________________________

5. Do you use IM to talk with your friends? Y N
    a. If **no**, go to number 12.
    b. If yes, continue with the next question.
6. **PLEASE INDICATE THE EXTENT TO WHICH YOU AGREE WITH THE FOLLOWING STATEMENTS.**

When I talk to my friends on IM:	strongly disagree	disagree	agree	strongly agree

a. It's like they are in the next room. 1......2......3......4......5......6......7......8......9......10
b. I feel like I can talk about anything. 1......2......3......4......5......6......7......8......9......10
c. I feel like our conversation is predominately shallow. 1......2......3......4......5......6......7......8......9......10
d. I feel they really understand me. 1......2......3......4......5......6......7......8......9......10
e. I feel close to them. 1......2......3......4......5......6......7......8......9......10
f. A warm atmosphere is created. 1......2......3......4......5......6......7......8......9......10
g. I feel like they might judge me. 1......2......3......4......5......6......7......8......9......10

7. **PLEASE RATE THE FOLLOWING.**

When I talk to my friends on IM, generally our conversations are about:

never some of the time almost always

a. Family-related issues 1......2......3......4......5......6......7......8......9......10
b. Fears 1......2......3......4......5......6......7......8......9......10
c. Future aspirations 1......2......3......4......5......6......7......8......9......10
d. Love/sex 1......2......3......4......5......6......7......8......9......10
e. Relationships with significant others 1......2......3......4......5......6......7......8......9......10
f. The latest social gathering 1......2......3......4......5......6......7......8......9......10
g. What happened to each of us during the day 1......2......3......4......5......6......7......8......9......10

8. **PLEASE INDICATE THE EXTENT TO WHICH YOU AGREE WITH THE FOLLOWING STATEMENTS.**

strongly disagree disagree agree strongly agree

a. I can't wait to see if my friends have sent me an instant message. 1......2......3......4......5......6......7......8......9......10
b. After talking with my friends on IM, I want to see them face-to-face. 1......2......3......4......5......6......7......8......9......10
c. I tend to keep very personal information to myself when talking with my friends on IM. 1......2......3......4......5......6......7......8......9......10
d. I am able to understand my friends' feelings when talking with them on IM. 1......2......3......4......5......6......7......8......9......10

9. **PLEASE RESPOND TO THE FOLLOWING.**

never some of the time almost always

When you use IM to talk with your friends:

a. Do you feel close to your friends most of the time? 1......2......3......4......5......6......7......8......9......10
b. Do you feel it is important for you to listen to your friends' very personal disclosures? 1......2......3......4......5......6......7......8......9......10
c. Do you feel your relationship with you friend is satisfying? 1......2......3......4......5......6......7......8......9......10
d. Do you feel it is important to you that they be encouraging? 1......2......3......4......5......6......7......8......9......10
e. Do you feel your relationship with them is important in your life? 1......2......3......4......5......6......7......8......9......10
f. Do you feel like being encouraging and supportive to your friends when they are unhappy? 1......2......3......4......5......6......7......8......9......10

****PLEASE GO TO NUMBER 11.****

10. Why don't you go on-line? (please explain) ______________________

11. How often do you use the following media?	never	some of the time	almost always
a. Telephone	1......2......3......4......5......6......7......8......9......10		
b. Cellular phone	1......2......3......4......5......6......7......8......9......10		
c. E-mail	1......2......3......4......5......6......7......8......9......10		
d. Other (please specify) ______________________			

12. How often do you communicate with your friends using the following media?	never	some of the time	almost always
a. Telephone	1......2......3......4......5......6......7......8......9......10		
b. Cellular phone	1......2......3......4......5......6......7......8......9......10		
c. E-mail	1......2......3......4......5......6......7......8......9......10		
d. Other (please specify) ______________________			

13. Age (in years): _____

14. Gender: M F

15. Do you own a computer? Y N

****END OF THE SURVEY. THANK YOU!!****

Appendix 2

Informed Consent Form for Behavioral Research Study

Title of Project: PSYCHOLOGICAL EFFECTS OF COMPUTER-MEDIATED COMMUNICATION (IRB# 00B1034)

Principal Investigator:

Other Investigator(s):

1. **Purpose of the Study**: The study in which you will be participating is part of research intended to gather information about consumers' perceptions of computer-mediated communication (CMC). This data will be used in conjunction with data from other subjects in similar experimental sessions to determine overall patterns of perceptions to **computer-mediated communication**.

2. **Procedures to be followed**: If you agree to take part in this research, you will be asked to go through

a CMC message and then fill out a paper-and-pencil questionnaire to determine your perceptions of message effectiveness.

3. **Discomforts and Risks**: There are no risks in participating in this research beyond those experienced in everyday life.

4. **Benefits**:

a. The benefits to participants include learning about you as a media consumer. You will have a better understanding of how media influences culture.

b. The benefits of this study to society include a better understanding of the mechanisms through which media influences culture, which could help plan programs, improve policies, make media consumers part of a more critical audience.

5. **Duration/Time**: Your participation in this research will take only about **30 minutes.**

6. **Statement of Confidentiality**: Your participation in this research is confidential. Only the person(s) in charge will have access to your identity and to information that can be associated with your identity. In the event of publication of this research, no personally identifying information will be disclosed. Confidentiality of the results of this study, as they apply to subjects in general, will be maintained as no names or identification of any sort will be tagged to the data, and the researcher is not permitted to discuss specific cases in conjunction with the identity of the subjects.

7. **Right to Ask Questions**: You may ask any questions about the research procedures, and these questions will be answered. Further questions should be directed to   at the address listed above.

8. **Compensation**: Participants will receive ___ % of the classes from which they were recruited (___ extra credit points) as allowed by their instructor. There is another option to participating to receive the extra credit. This option is to read an article related to quantitative research in media (media effects research) that the instructor assigns, and prepare a one-page reaction to it. The person in charge will provide an instruction sheet containing information on how to write the extra credit assignment. A sign up sheet will be handed to you during the class of the week in which participants will be recruited (for purposes of extra credit receivers' identification ONLY).

9. **Voluntary Participation**: Your participation in this experiment is voluntary. You are free to stop participating in the research at any time, or to decline to answer any specific questions without penalty.

You must be 18 years of age or older to consent to participate in this research study. If you consent to participate in this research study and to the terms above, please sign your name and indicate the date below. If you have any additional questions regarding your rights as research participants, please contact
.

You will be given a copy of this consent form to keep for your records.

______________________________   ________________

Participant Signature Date

I, the undersigned, verify that the above informed consent procedure has been followed.

Investigator Signature Date

Appendix 3

Charts 1-55

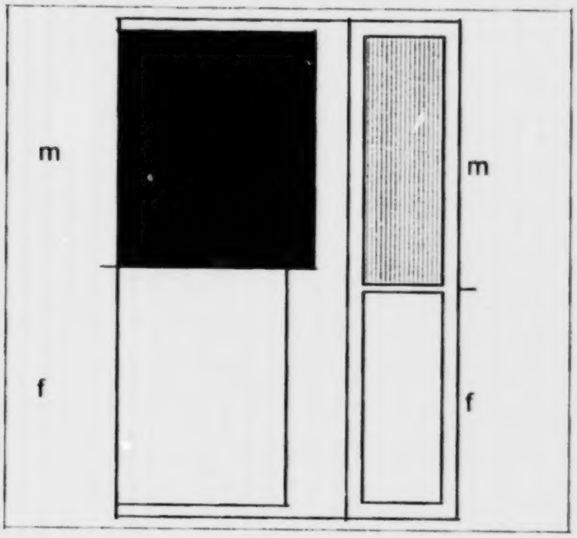
Distribution of Gender
Distribution of Age
Distributions of IM Use Location: Home
Distribution of IM Use Location: Computer Lab
Distributions of IM Use Location: Home
Distribution of IM Use Location: Computer Lab Distribution of IM Use Location: Work
Distributions of IM software on
Distributions of IM actual use (hrs)
Distribution of Other Media Use: E-mail to Friends
Distribution of Verbal Intimacy
Distribution of Verbal Intimacy items: Family Issues
Distribution of Verbal Intimacy items: Fears
Distribution of Verbal Intimacy items: Aspiration
Distribution of Verbal Intimacy items: Love/Sex
Distribution of Verbal Intimacy items: Significant Others
Distribution of Verbal Intimacy items: Social Gathering
Distribution of Verbal Intimacy items: What Happened
Distribution of Affective Intimacy items: Next Room
Distribution of Affective Intimacy items: Talk Anything
Distribution of Affective Intimacy items: Shallow Conversation (reverse-coded)
Distribution of Affective Intimacy items: Understand me
Distribution of Affective Intimacy items: Feel Close
Distribution of Affective Intimacy items: Warm Atmosphere
Distribution of Affective Intimacy items: Can't wait

Distribution of Affective Intimacy items: Understand feelings
Distribution of Social Intimacy
Distribution of Social Intimacy items: Close-most time
Distribution of Social Intimacy items: Important to Listen
Distribution of Social Intimacy items: Satisfying
Distribution of Social Intimacy items: Encouraging to Me
Distribution of Social Intimacy items: Important in Life
Distribution of Social Intimacy items: Encouraging to Them
The Relationship between IM Use and Intimacy using Linear Regression
Verbal Intimacy by IM Use Graph
Affective Intimacy by IM Use Graph
Social Intimacy by IM Use Graph
Verbal Intimacy by IM Use, Controlling for Gender
Affective Intimacy by IM Use, Controlling for Gender
Social Intimacy by IM Use, Controlling for Gender
Verbal Intimacy by IM Use, Controlling for Age
Affective Intimacy by IM Use, Controlling for Age
Social Intimacy by IM Use, Controlling for Age
ANOVA of Age by IM Use (ordinal)
ANOVA of Telephone Use by IM Use (ordinal)
E-mail to Friends by Age Graph
Verbal Intimacy by IM Home Graph
Affective Intimacy by IM Home Graph
Social Intimacy by IM Home Graph

Table 1

Distribution of Gender

Gender



Frequencies

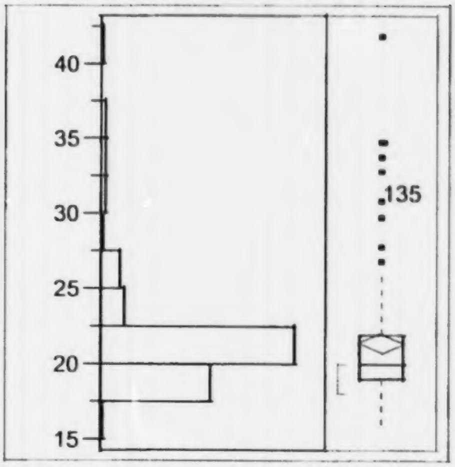
Level	Count	Prob
F	55	0.46218
M	64	0.53782
Total	119	1.00000

2 Levels

Table 2

Distribution of Age

Age



Quantiles

100.0%	maximum	42.000
99.5%		42.000
97.5%		35.000
90.0%		26.000
75.0%	quartile	22.000
50.0%	median	20.000
25.0%	quartile	19.000
10.0%		18.000
2.5%		18.000
0.5%		16.000
0.0%	minimum	16.000

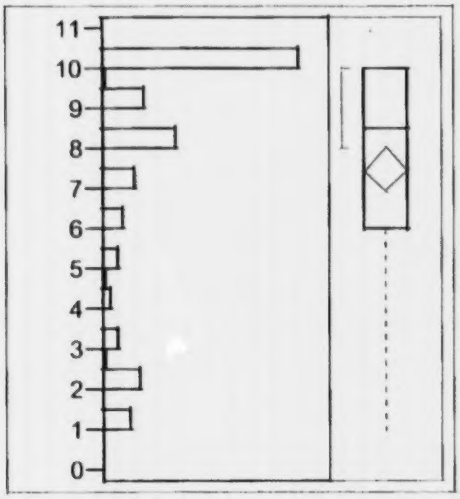
Moments

Mean	21.386555
Std Dev	3.9490596
Std Err Mean	0.3620097
upper 95% Mean	22.103432
lower 95% Mean	20.669677
N	119

Table 3

Distributions of IM Use Location: Home

IM Home



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	10.000
50.0%	median	8.500
25.0%	quartile	6.000
10.0%		2.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

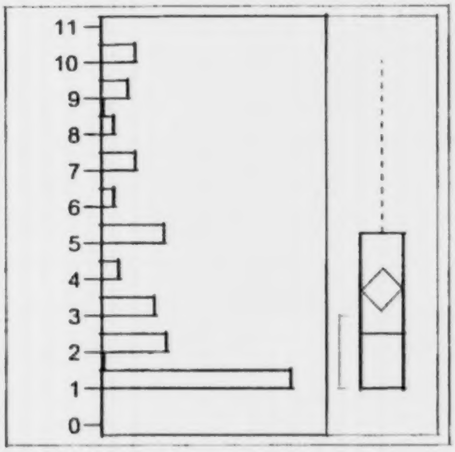
Moments

Mean	7.470339
Std Dev	3.033497
Std Err Mean	0.279256
upper 95% Mean	8.0233909
lower 95% Mean	6.917287
N	118

Table 4

Distribution of IM Use Location: Computer Lab

IM computer lab



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		9.000
75.0%	quartile	5.250
50.0%	median	2.500
25.0%	quartile	1.000
10.0%		1.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

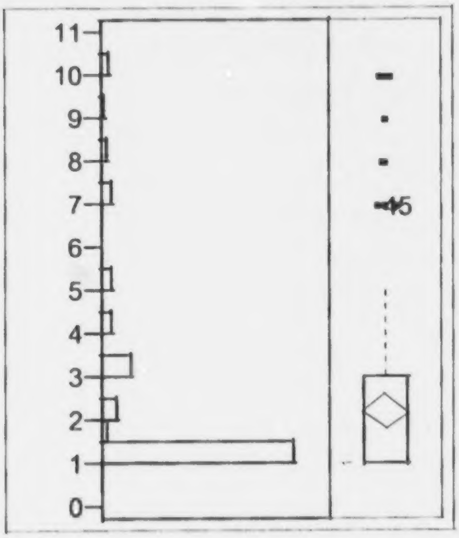
Moments

Mean	3.7033898
Std Dev	3.0087034
Std Err Mean	0.2769736
upper 95% Mean	4.2519215
lower 95% Mean	3.1548581
N	118

Table 5

Distribution of IM Use Location: Work

IM work



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		5.000
75.0%	quartile	3.000
50.0%	median	1.000
25.0%	quartile	1.000
10.0%		1.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

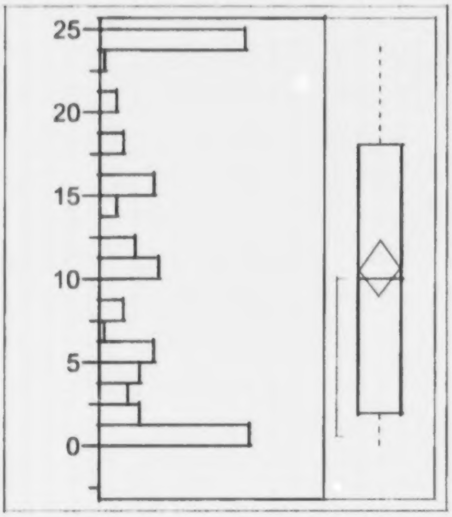
Moments

Mean	2.1818182
Std Dev	2.237839
Std Err Mean	0.2133696
upper 95% Mean	2.6047097
lower 95% Mean	1.7589266
N	110

Table 6

Distributions of IM software on

IM on (hrs)



Quantiles

100.0%	maximum	24.000
99.5%		24.000
97.5%		24.000
90.0%		24.000
75.0%	quartile	18.000
50.0%	median	10.000
25.0%	quartile	2.000
10.0%		1.000
2.5%		0.244
0.5%		0.000
0.0%	minimum	0.000

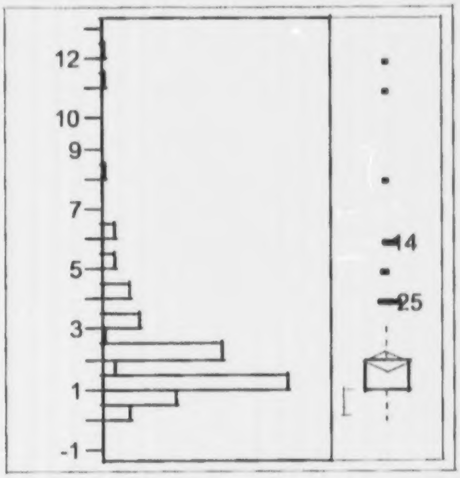
Moments

Mean	10.569915
Std Dev	8.7858475
Std Err Mean	0.8088028
upper 95% Mean	12.171707
lower 95% Mean	8.9681236
N	118

Table 7

Distributions of IM actual use (hrs)

IM use (hrs)



Quantiles

100.0%	maximum	12.000
99.5%		12.000
97.5%		8.300
90.0%		4.000
75.0%	quartile	2.000
50.0%	median	1.000
25.0%	quartile	1.000
10.0%		0.500
2.5%		0.090
0.5%		0.000
0.0%	minimum	0.000

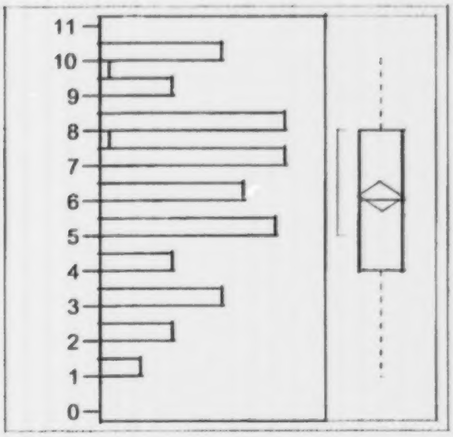
Moments

Mean	1.9091304
Std Dev	1.9238642
Std Err Mean	0.1794013
upper 95% Mean	2.264523
lower 95% Mean	1.5537379
N	115

Table 8

Distribution of Other Media Use: Telephone

Telephone



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	8.000
50.0%	median	6.000
25.0%	quartile	4.000
10.0%		2.900
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

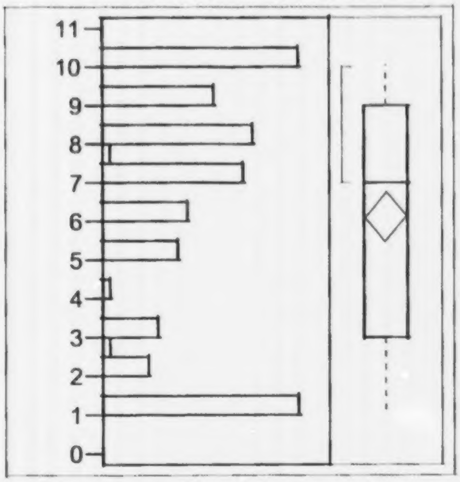
Moments

Mean	6.1101695
Std Dev	2.485974
Std Err Mean	0.2288525
upper 95% Mean	6.5633998
lower 95% Mean	5.6569392
N	118

Table 9

Distribution of Other Media Use: Cell Phone

Cell phone



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	9.000
50.0%	median	7.000
25.0%	quartile	3.000
10.0%		1.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

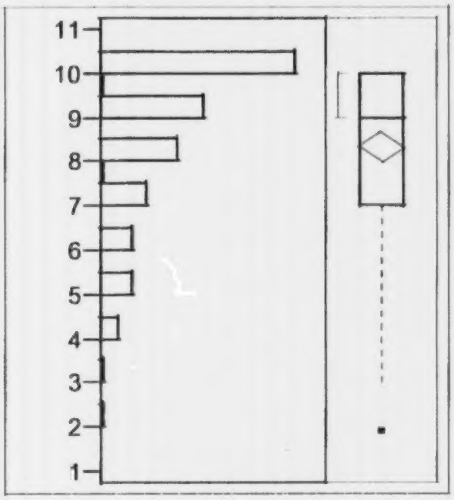
Moments

Mean	6.1034483
Std Dev	3.2400465
Std Err Mean	0.3008308
upper 95% Mean	6.6993361
lower 95% Mean	5.5075604
N	116

Table 10

Distribution of Other Media Use: E-mail

E-mail



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	10.000
50.0%	median	9.000
25.0%	quartile	7.000
10.0%		5.000
2.5%		3.900
0.5%		2.000
0.0%	minimum	2.000

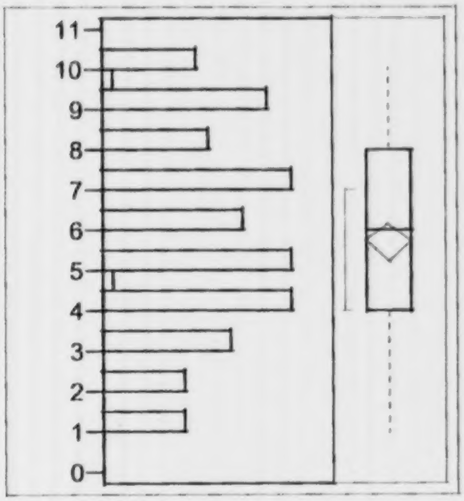
Moments

Mean	8.3304348
Std Dev	1.8986225
Std Err Mean	0.1770475
upper 95% Mean	8.6811644
lower 95% Mean	7.9797051
N	115

Table 11

Distribution of Other Media Use: Telephone to Friends

Telephone friends



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		9.000
75.0%	quartile	8.000
50.0%	median	6.000
25.0%	quartile	4.000
10.0%		2.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

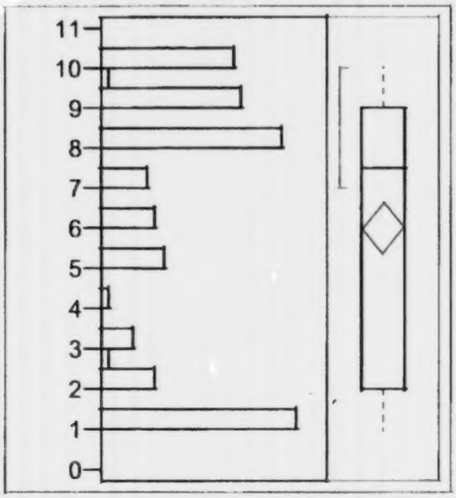
Moments

Mean	5.7118644
Std Dev	2.5765268
Std Err Mean	0.2371885
upper 95% Mean	6.1816038
lower 95% Mean	5.242125
N	118

Table 12

Distribution of Other Media Use: Cell Phone to Friends

Cell phone friends



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	9.000
50.0%	median	7.500
25.0%	quartile	2.000
10.0%		1.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

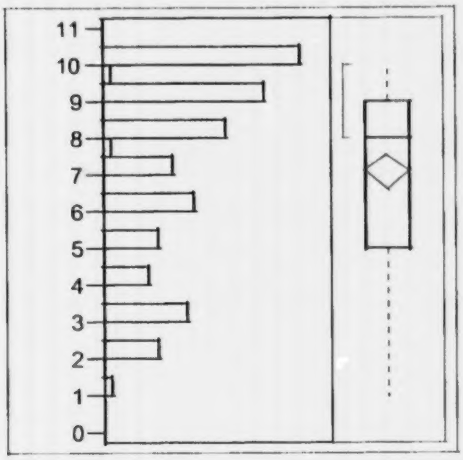
Moments

Mean	5.9915254
Std Dev	3.3861098
Std Err Mean	0.3117167
upper 95% Mean	6.608864
lower 95% Mean	5.3741869
N	118

Table 13

Distribution of Other Media Use: E-mail to Friends

E-mail friends



Quantiles

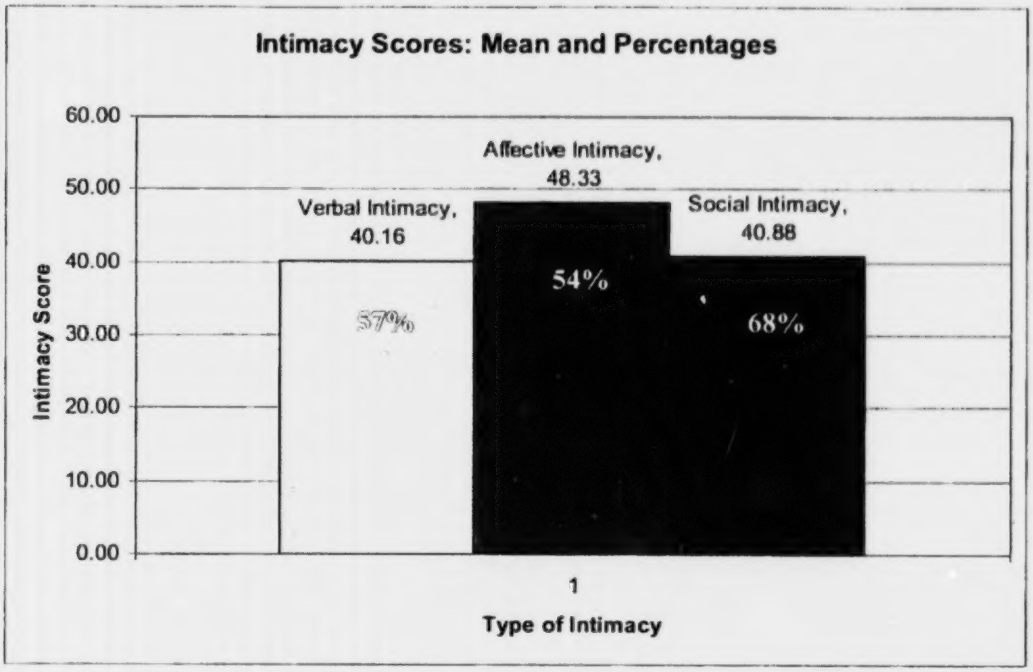
100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	9.000
50.0%	median	8.000
25.0%	quartile	5.000
10.0%		3.000
2.5%		2.000
0.5%		1.000
0.0%	minimum	1.000

Moments

Mean	7.0847458
Std Dev	2.6484192
Std Err Mean	0.2438067
upper 95% Mean	7.5675923
lower 95% Mean	6.6018993
N	118

Table 14

Verbal, Affective and Social Intimacy Means and Percentages



Intimacy Scores: Mean and Percentages

INTIMACY	Mean	Intimacy Score
Verbal Intimacy*	**40.16**	**57%**
Affective Intimacy*	**48.33**	**54%**
Social Intimacy (MSIS)*	**40.88**	**68%**

*** Highest possible score: Affective Intimacy = 90; Verbal Intimacy = 70; Social Intimacy = 60**
Divide the intimacy total by the highest possible score, multiply by 100 to calculate the Intimacy Score.

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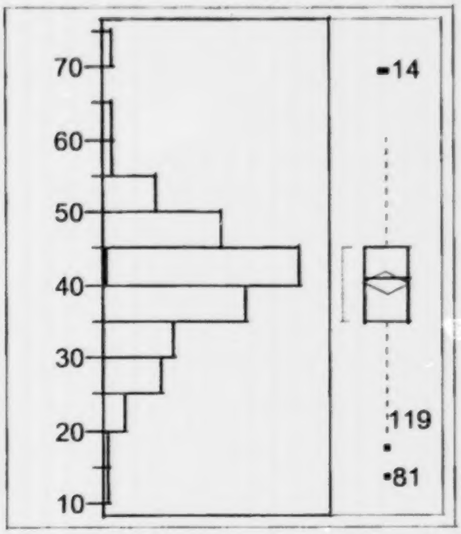
Table 15

Distribution of Verbal Intimacy

Verbal Intimacy



Quantiles

100.0%	maximum	70.000
99.5%		70.000
97.5%		60.000
90.0%		50.000
75.0%	quartile	45.000
50.0%	median	41.000
25.0%	quartile	35.000
10.0%		27.100
2.5%		20.050
0.5%		14.000
0.0%	minimum	14.000

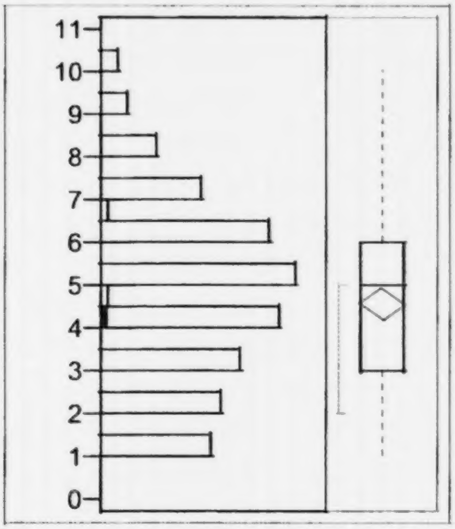
Moments

Mean	40.158333
Std Dev	9.4932491
Std Err Mean	0.8666111
upper 95% Mean	41.87431
lower 95% Mean	38.442357
N	120

Table 16

Distribution of Verbal Intimacy items: Family Issues

Family issues



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		9.000
90.0%		7.000
75.0%	quartile	6.000
50.0%	median	5.000
25.0%	quartile	3.000
10.0%		1.300
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

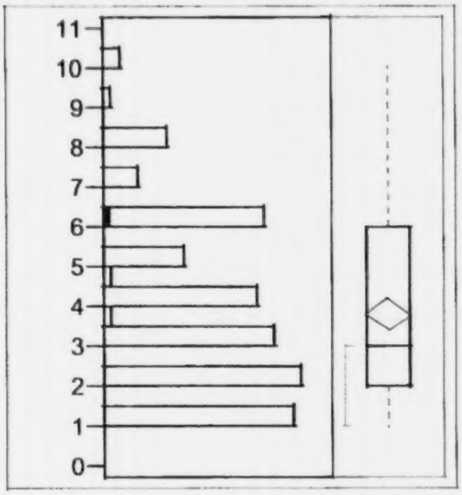
Moments

Mean	4.5491803
Std Dev	2.1888238
Std Err Mean	0.1981668
upper 95% Mean	4.9415038
lower 95% Mean	4.1568569
N	122

Table 17

Distribution of Verbal Intimacy items: Fears

Fears



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		8.925
90.0%		7.000
75.0%	quartile	6.000
50.0%	median	3.000
25.0%	quartile	2.000
10.0%		1.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

Moments

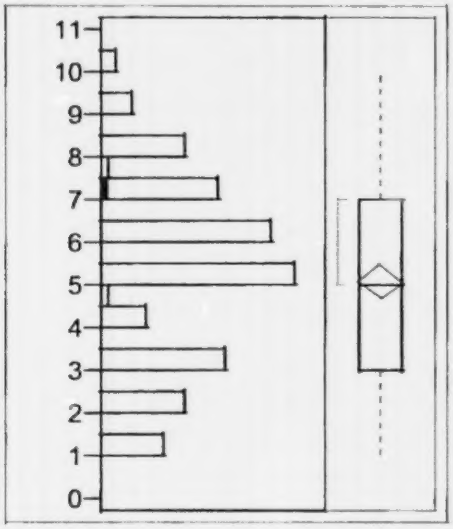
Mean	3.8032787
Std Dev	2.2595595
Std Err Mean	0.2045709
upper 95% Mean	4.2082807
lower 95% Mean	3.3982766
N	122

341

Table 18

Distribution of Verbal Intimacy items: Aspiration

Aspiration



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		9.000
90.0%		8.000
75.0%	quartile	7.000
50.0%	median	5.000
25.0%	quartile	3.000
10.0%		2.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

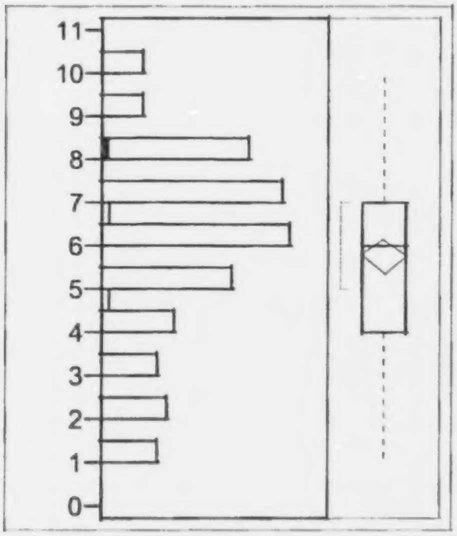
Moments

Mean	5.0819672
Std Dev	2.2225001
Std Err Mean	0.2012157
upper 95% Mean	5.4803268
lower 95% Mean	4.6836076
N	122

Table 19

Distribution of Verbal Intimacy items: Love/Sex

Love/sex



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		8.000
75.0%	quartile	7.000
50.0%	median	6.000
25.0%	quartile	4.000
10.0%		2.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

Moments

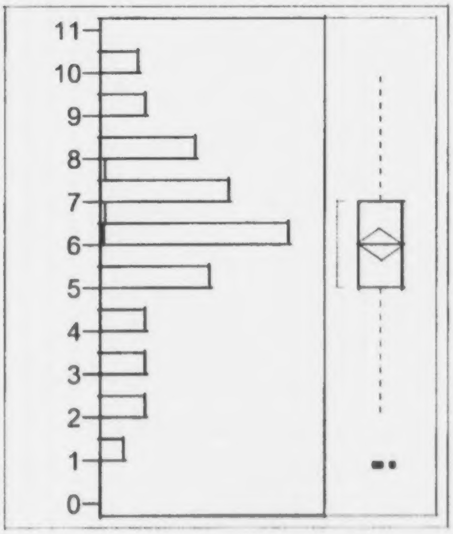
Mean	5.7540984
Std Dev	2.2856414
Std Err Mean	0.2069322
upper 95% Mean	6.1637753
lower 95% Mean	5.3444214
N	122

343

Table 20

Distribution of Verbal Intimacy items: Significant Others

Significant others



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		9.000
75.0%	quartile	7.000
50.0%	median	6.000
25.0%	quartile	5.000
10.0%		3.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

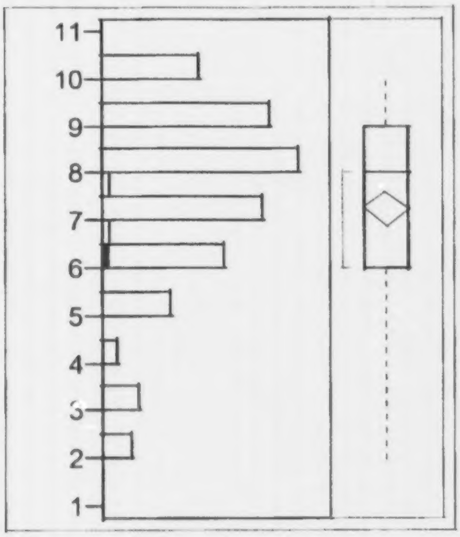
Moments

Mean	5.9752066
Std Dev	2.1629949
Std Err Mean	0.1966359
upper 95% Mean	6.364532
lower 95% Mean	5.5858812
N	121

Table 21

Distribution of Verbal Intimacy items: Social Gathering

Social gathering



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	9.000
50.0%	median	8.000
25.0%	quartile	6.000
10.0%		5.000
2.5%		2.000
0.5%		2.000
0.0%	minimum	2.000

Moments

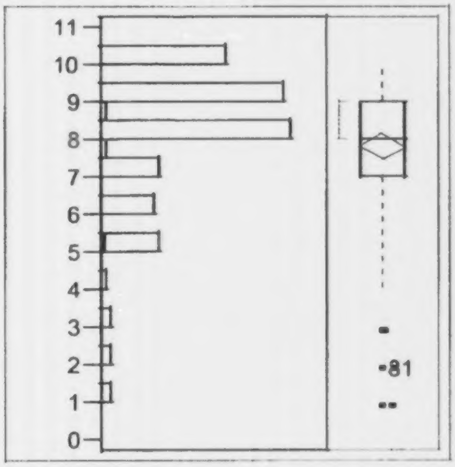
Mean	7.2416667
Std Dev	1.9968287
Std Err Mean	0.1822847
upper 95% Mean	7.6026086
lower 95% Mean	6.8807248
N	120

345

Table 22

Distribution of Verbal Intimacy items: What Happened

What happened



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	9.000
50.0%	median	8.000
25.0%	quartile	7.000
10.0%		5.000
2.5%		2.000
0.5%		1.000
0.0%	minimum	1.000

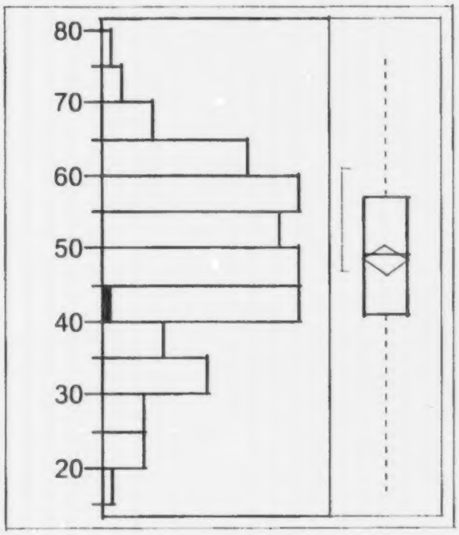
Moments

Mean	7.795082
Std Dev	1.996644
Std Err Mean	0.1807677
upper 95% Mean	8.1529592
lower 95% Mean	7.4372047
N	122

Table 23

Distribution of Affective Intimacy

Affective Intimacy



Quantiles

100.0%	maximum	76.000
99.5%		76.000
97.5%		69.950
90.0%		62.800
75.0%	quartile	57.000
50.0%	median	49.000
25.0%	quartile	41.000
10.0%		32.000
2.5%		20.100
0.5%		17.000
0.0%	minimum	17.000

Moments

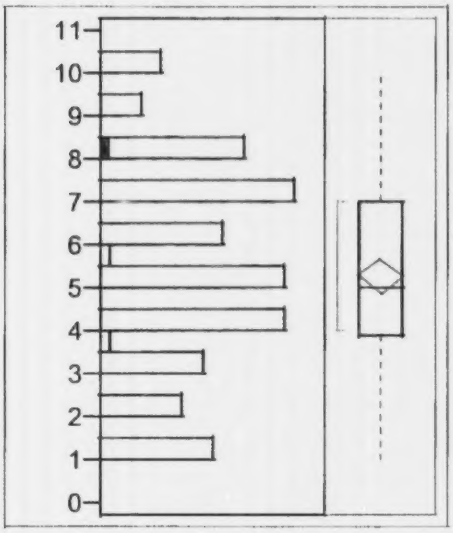
Mean	48.330579
Std Dev	12.117232
Std Err Mean	1.1015665
upper 95% Mean	50.511604
lower 95% Mean	46.149553
N	121

347

Table 24

Distribution of Affective Intimacy items: Next Room

Next room



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		8.000
75.0%	quartile	7.000
50.0%	median	5.000
25.0%	quartile	3.875
10.0%		2.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

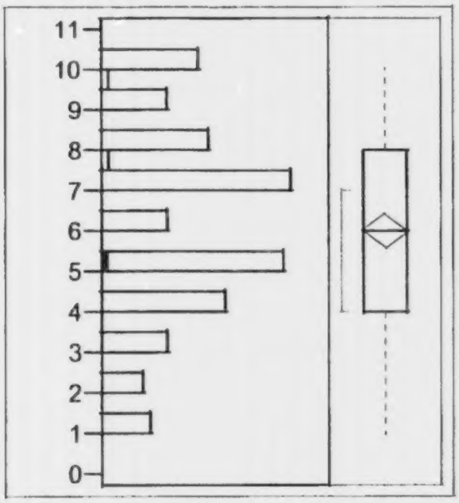
Moments

Mean	5.2540984
Std Dev	2.4539106
Std Err Mean	0.2221666
upper 95% Mean	5.6939358
lower 95% Mean	4.8142609
N	122

Table 25

Distribution of Affective Intimacy items: Talk Anything

Talk anything



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		9.850
75.0%	quartile	8.000
50.0%	median	6.000
25.0%	quartile	4.000
10.0%		3.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

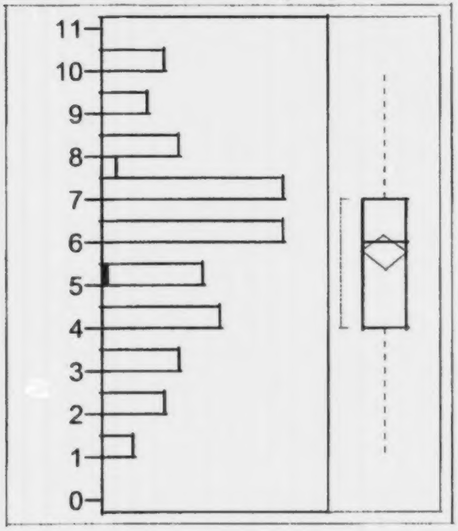
Moments

Mean	6
Std Dev	2.4688137
Std Err Mean	0.2235159
upper 95% Mean	6.4425087
lower 95% Mean	5.5574913
N	122

Table 26

Distribution of Affective Intimacy items: Shallow Conversation (reverse-coded)

Shallow Conversation (RC)



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		9.000
75.0%	quartile	7.000
50.0%	median	6.000
25.0%	quartile	4.000
10.0%		2.300
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

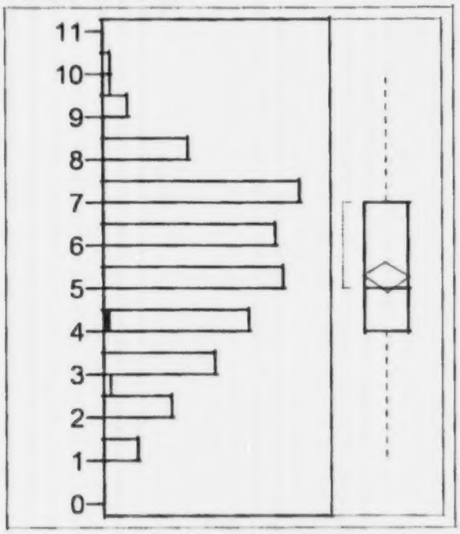
Moments

Mean	5.7622951
Std Dev	2.2883221
Std Err Mean	0.2071749
upper 95% Mean	6.1724525
lower 95% Mean	5.3521376
N	122

Table 27

Distribution of Affective Intimacy items: Understand me

Understand me



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		9.000
90.0%		8.000
75.0%	quartile	7.000
50.0%	median	5.000
25.0%	quartile	4.000
10.0%		2.150
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

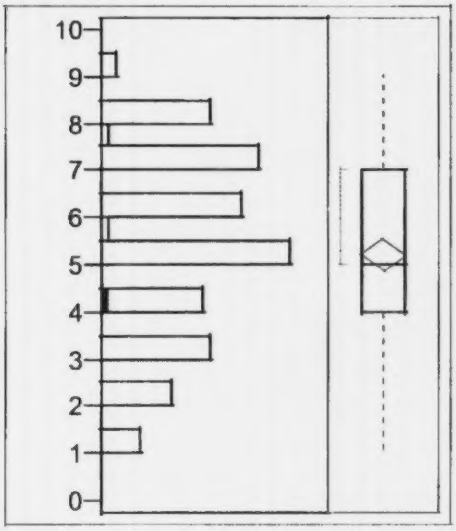
Moments

Mean	5.2622951
Std Dev	2.0289365
Std Err Mean	0.1836913
upper 95% Mean	5.6259604
lower 95% Mean	4.8986298
N	122

Table 28

Distribution of Affective Intimacy items: Feel Close

Feel close



Quantiles

100.0%	maximum	9.0000
99.5%		9.0000
97.5%		8.0000
90.0%		8.0000
75.0%	quartile	7.0000
50.0%	median	5.0000
25.0%	quartile	4.0000
10.0%		2.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

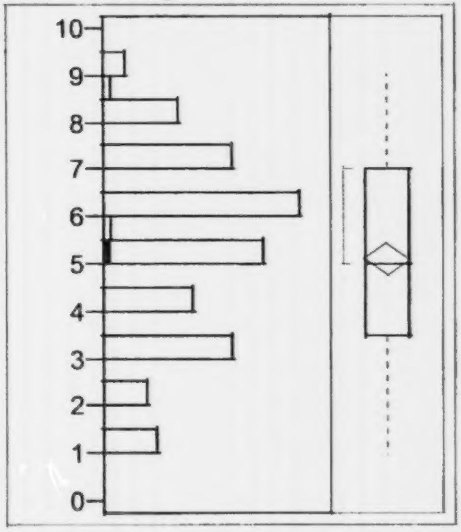
Moments

Mean	5.1900826
Std Dev	2.0168625
Std Err Mean	0.1833511
upper 95% Mean	5.5531051
lower 95% Mean	4.8270602
N	121

Table 29

Distribution of Affective Intimacy items: Warm Atmosphere

Warm atmosphere



Quantiles

100.0%	maximum	9.0000
99.5%		9.0000
97.5%		8.9750
90.0%		8.0000
75.0%	quartile	7.0000
50.0%	median	5.0000
25.0%	quartile	3.5000
10.0%		2.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

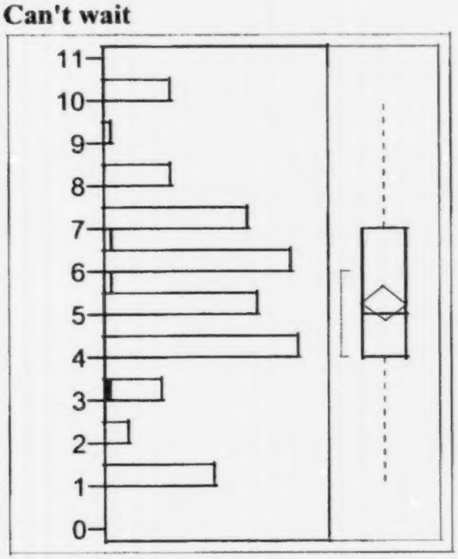
Moments

Mean	5.1157025
Std Dev	2.0184156
Std Err Mean	0.1834923
upper 95% Mean	5.4790045
lower 95% Mean	4.7524004
N	121

353

Table 30

Distribution of Affective Intimacy items: Can't wait



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		8.000
75.0%	quartile	7.000
50.0%	median	5.000
25.0%	quartile	4.000
10.0%		1.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

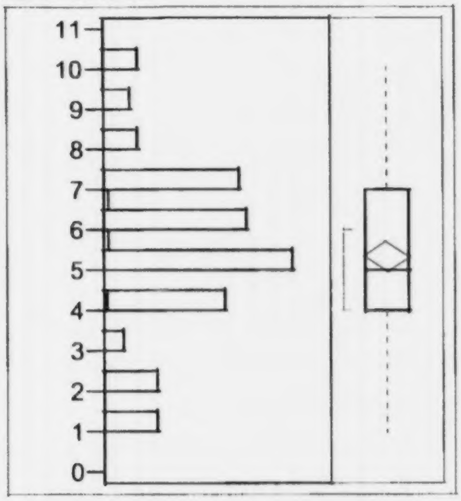
Moments

Mean	5.2295082
Std Dev	2.3356274
Std Err Mean	0.2114578
upper 95% Mean	5.6481446
lower 95% Mean	4.8108718
N	122

Table 31

Distribution of Affective Intimacy items: Face-to-Face

Face-to-face



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		8.000
75.0%	quartile	7.000
50.0%	median	5.000
25.0%	quartile	4.000
10.0%		2.000
2.5%		1.000
0.5%		1.000
0.0%	minimum	1.000

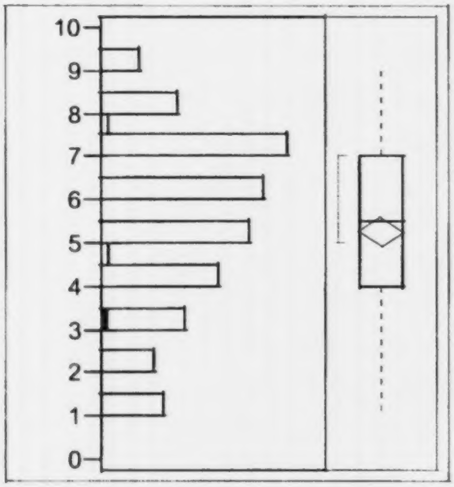
Moments

Mean	5.3196721
Std Dev	2.1417394
Std Err Mean	0.193904
upper 95% Mean	5.7035562
lower 95% Mean	4.9357881
N	122

Table 32

Distribution of Affective Intimacy items: Understand feelings

Understand feelings



Quantiles

100.0%	maximum	9.0000
99.5%		9.0000
97.5%		9.0000
90.0%		8.0000
75.0%	quartile	7.0000
50.0%	median	5.5000
25.0%	quartile	4.0000
10.0%		2.0000
2.5%		1.0000
0.5%		1.0000
0.0%	minimum	1.0000

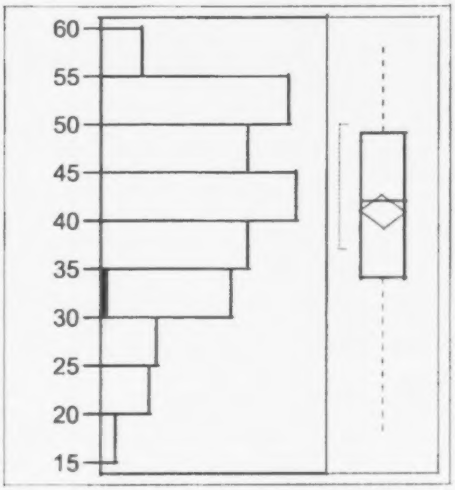
Moments

Mean	5.2540984
Std Dev	2.1039572
Std Err Mean	0.1904833
upper 95% Mean	5.6312104
lower 95% Mean	4.8769864
N	122

Table 33

Distribution of Social Intimacy

Social Intimacy (MSIS)



Quantiles

100.0%	maximum	58.000
99.5%		58.000
97.5%		56.000
90.0%		53.000
75.0%	quartile	49.000
50.0%	median	42.000
25.0%	quartile	34.000
10.0%		27.000
2.5%		20.000
0.5%		18.000
0.0%	minimum	18.000

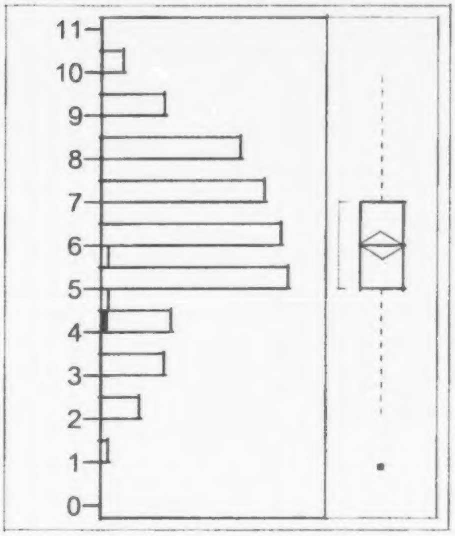
Moments

Mean	40.882353
Std Dev	9.5794417
Std Err Mean	0.878146
upper 95% Mean	42.621321
lower 95% Mean	39.143385
N	119

Table 34

Distribution of Social Intimacy items: Close-most time

Close-most time



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		9.925
90.0%		8.000
75.0%	quartile	7.000
50.0%	median	6.000
25.0%	quartile	5.000
10.0%		3.000
2.5%		2.000
0.5%		1.000
0.0%	minimum	1.000

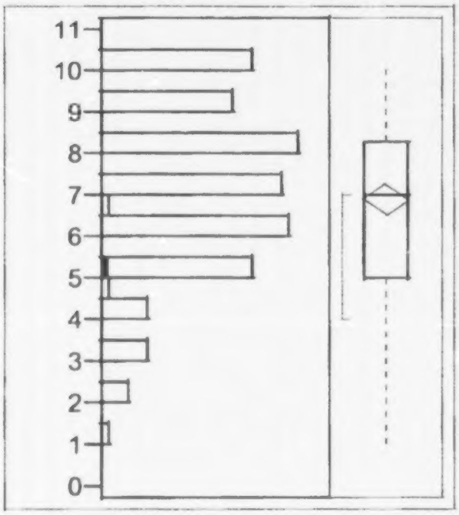
Moments

Mean	6
Std Dev	1.9338225
Std Err Mean	0.1750801
upper 95% Mean	6.3466172
lower 95% Mean	5.6533828
N	122

Table 35

Distribution of Social Intimacy items: Important to Listen

Important to listen



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	8.250
50.0%	median	7.000
25.0%	quartile	5.000
10.0%		4.000
2.5%		2.000
0.5%		1.000
0.0%	minimum	1.000

Moments

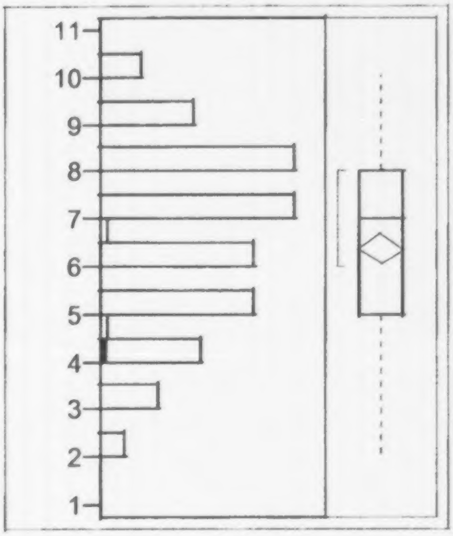
Mean	6.8852459
Std Dev	2.124033
Std Err Mean	0.1923009
upper 95% Mean	7.2659563
lower 95% Mean	6.5045355
N	122

359

Table 36

Distribution of Social Intimacy items: Satisfying

Satisfying



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		9.000
75.0%	quartile	8.000
50.0%	median	7.000
25.0%	quartile	5.000
10.0%		4.000
2.5%		2.075
0.5%		2.000
0.0%	minimum	2.000

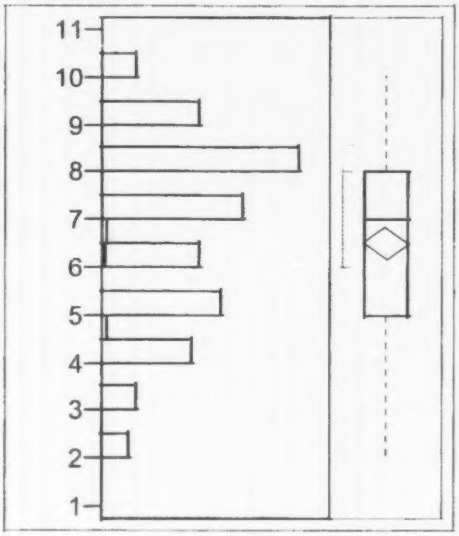
Moments

Mean	6.3770492
Std Dev	1.9416184
Std Err Mean	0.1757859
upper 95% Mean	6.7250637
lower 95% Mean	6.0290347
N	122

Table 37

Distribution of Social Intimacy items: Encouraging to Me

Encouraging to me



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		9.000
75.0%	quartile	8.000
50.0%	median	7.000
25.0%	quartile	5.000
10.0%		4.000
2.5%		2.000
0.5%		2.000
0.0%	minimum	2.000

Moments

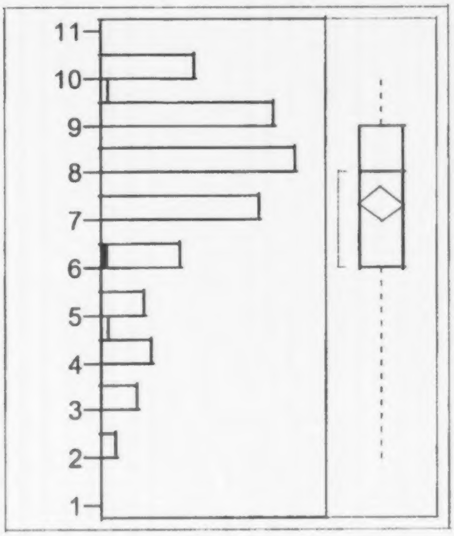
Mean	6.5163934
Std Dev	2.0040604
Std Err Mean	0.1814391
upper 95% Mean	6.8756
lower 95% Mean	6.1571869
N	122

361

Table 38

Distribution of Social Intimacy items: Important in Life

Important in life



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	9.000
50.0%	median	8.000
25.0%	quartile	6.000
10.0%		4.000
2.5%		3.000
0.5%		2.000
0.0%	minimum	2.000

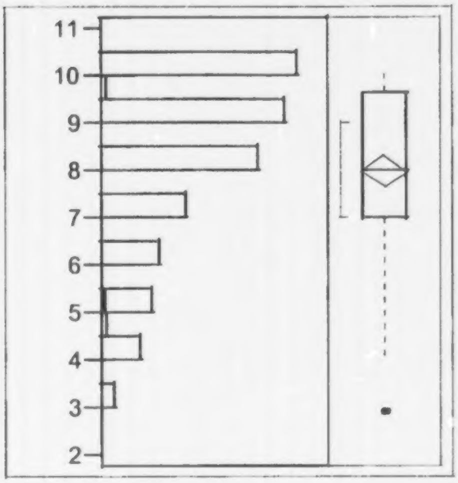
Moments

Mean	7.3361345
Std Dev	1.9894949
Std Err Mean	0.1823767
upper 95% Mean	7.69729
lower 95% Mean	6.9749789
N	119

Table 39

Distribution of Social Intimacy items: Encouraging to Them

Encouraging to them



Quantiles

100.0%	maximum	10.000
99.5%		10.000
97.5%		10.000
90.0%		10.000
75.0%	quartile	9.625
50.0%	median	8.000
25.0%	quartile	7.000
10.0%		5.000
2.5%		4.000
0.5%		3.000
0.0%	minimum	3.000

Moments

Mean	7.9754098
Std Dev	1.8838729
Std Err Mean	0.1705578
upper 95% Mean	8.3130741
lower 95% Mean	7.6377456
N	122

Table 40

The Relationship between IM Use and Intimacy using Linear Regression

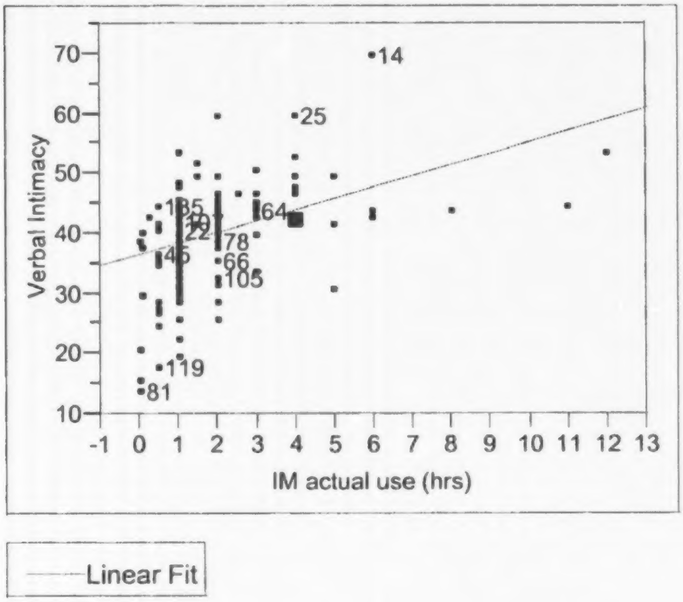
INTIMACY FACTORS	Beta□	N
Verbal Intimacy	**1.88**[a]	**112**
Affective Intimacy	**1.85**[b]	**113**
Social Intimacy (MSIS)	**1.35**[ab]	**111**

[a] $p < .0001$
[b] $p < .0008$
[ab] $p < .003$

Table 41

Verbal Intimacy by IM Use Graph

Bivariate Fit of Verbal Intimacy By IM actual use (hrs)



Linear Fit

Verbal Intimacy = 36.554786 + 1.8771433 IM actual use (hrs)

Summary of Fit

RSquare	0.176956
RSquare Adj	0.169474
Root Mean Square Error	7.928541
Mean of Response	40.13393
Observations (or Sum Wgts)	112

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1486.6966	1486.70	23.6503
Error	110	6914.7944	62.86	Prob > F
C. Total	111	8401.4911		<.0001

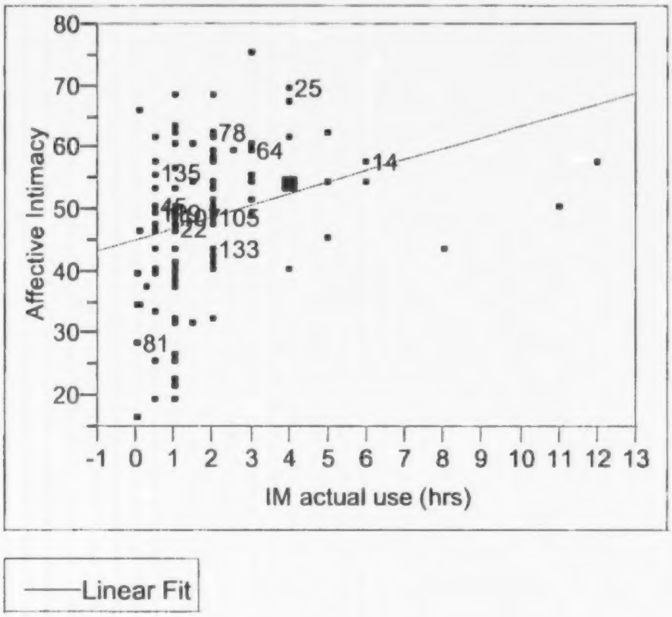
Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	36.554786	1.0502	34.81	<.0001
IM actual use (hrs)	1.8771433	0.385993	4.86	<.0001

Table 42

Affective Intimacy by IM Use Graph

Bivariate Fit of Affective Intimacy By IM actual use (hrs)



Linear Fit

Affective Intimacy = 45.095706 + 1.8472985 IM actual use (hrs)

Summary of Fit

RSquare	0.096859
RSquare Adj	0.088723
Root Mean Square Error	10.99767
Mean of Response	48.61947
Observations (or Sum Wgts)	113

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1439.828	1439.83	11.9044
Error	111	13425.309	120.95	Prob > F
C. Total	112	14865.137		0.0008

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	45.095706	1.45375	31.02	<.0001
IM actual use (hrs)	1.8472985	0.535405	3.45	0.0008

Table 43

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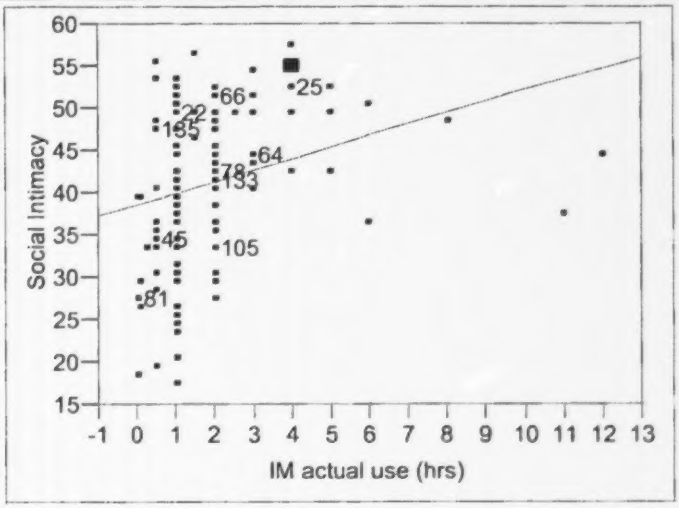
Social Intimacy by IM Use Graph

Bivariate Fit of Social Intimacy By IM actual use (hrs)



Linear Fit

Linear Fit

Social Intimacy = 38.656601 + 1.3526176 IM actual use (hrs)

Summary of Fit

RSquare	0.078423
RSquare Adj	0.069968
Root Mean Square Error	8.908645
Mean of Response	41.21622
Observations (or Sum Wgts)	111

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	736.1402	736.140	9.2755
Error	109	8650.6706	79.364	Prob > F
C. Total	110	9386.8108		0.0029

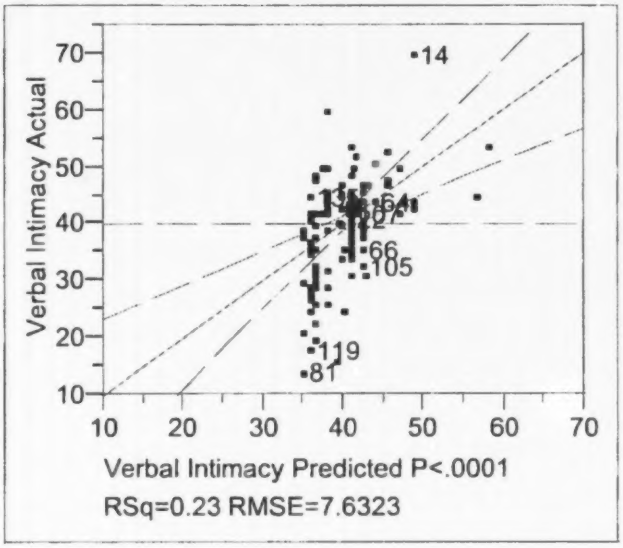
Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	38.656601	1.192195	32.42	<.0001
IM actual use (hrs)	1.3526176	0.444126	3.05	0.0029

Table 44

Verbal Intimacy by IM Use, Controlling for Gender

Whole Model Test for Verbal Intimacy



Summary of Fit

RSquare	0.227538
RSquare Adj	0.212964
Root Mean Square Error	7.632271
Mean of Response	39.99083
Observations (or Sum Wgts)	109

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	2	1818.8251	909.413	15.6118
Error	106	6174.6657	58.252	Prob > F
C. Total	108	7993.4908		<.0001

Effect Tests

Source	Nparm	DF	Sum of Squares	F Ratio	Prob > F
IM actual use (hrs)	1	1	987.92673	16.9597	<.0001
Gender	1	1	479.57497	8.2328	0.0050

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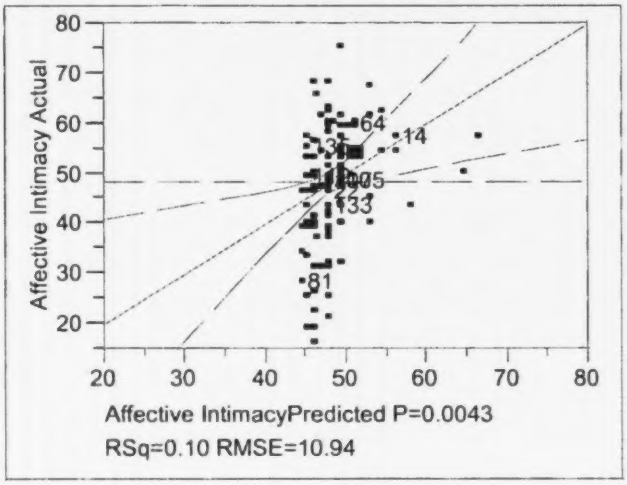
Table 45

Affective Intimacy by IM Use, Controlling for Gender

Whole Model Test for Affective Intimacy



Summary of Fit

RSquare	0.097019
RSquare Adj	0.080141
Root Mean Square Error	10.94009
Mean of Response	48.27273
Observations (or Sum Wgts)	110

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	2	1375.956	687.978	5.7482
Error	107	12806.362	119.686	Prob > F
C. Total	109	14182.318		0.0043

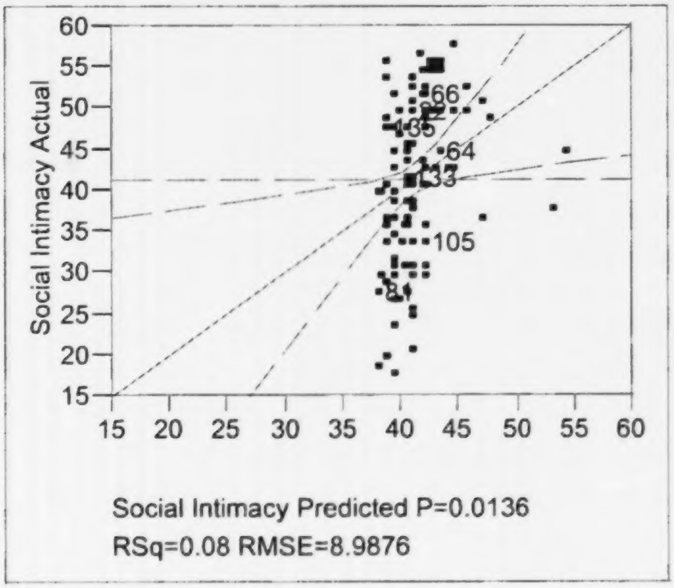
Effect Tests

Source	Nparm	DF	Sum of Squares	F Ratio	Prob > F
IM actual use (hrs)	1	1	1136.1958	9.4932	0.0026
Gender	1	1	70.8541	0.5920	0.4433

Table 46

Social Intimacy by IM Use, Controlling for Gender

Whole Model Test for Social Intimacy



Social Intimacy Predicted P=0.0136
RSq=0.08 RMSE=8.9876

Summary of Fit

RSquare	0.078643
RSquare Adj	0.061093
Root Mean Square Error	8.987648
Mean of Response	41.14815
Observations (or Sum Wgts)	108

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	2	723.9589	361.979	4.4812
Error	105	8481.6707	80.778	Prob > F
C. Total	107	9205.6296		0.0136

Effect Tests

Source	Nparm	DF	Sum of Squares	F Ratio	Prob > F
IM actual use (hrs)	1	1	562.50636	6.9636	0.0096
Gender	1	1	65.79554	0.8145	0.3689

Table 47

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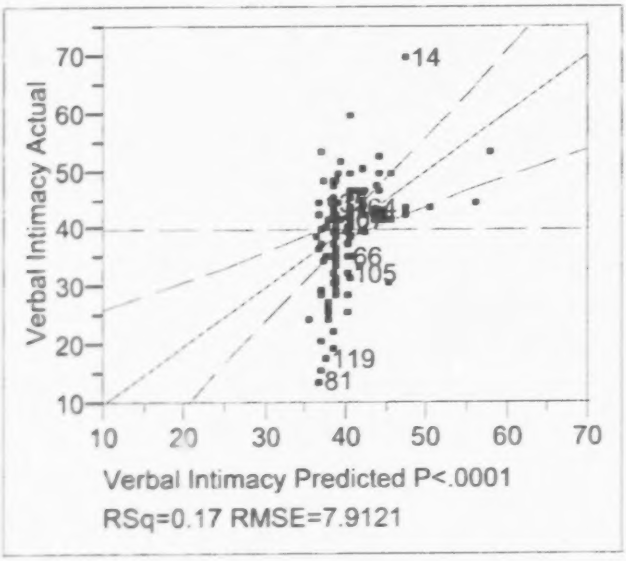
Verbal Intimacy by IM Use, Controlling for Age

Whole Model Test for Verbal Intimacy



Summary of Fit

RSquare	0.169847
RSquare Adj	0.154184
Root Mean Square Error	7.912145
Mean of Response	39.99083
Observations (or Sum Wgts)	109

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	2	1357.6742	678.837	10.8437
Error	106	6635.8167	62.602	Prob > F
C. Total	108	7993.4908		<.0001

Effect Tests

Source	Nparm	DF	Sum of Squares	F Ratio	Prob > F
IM actual use (hrs)	1	1	1227.9636	19.6154	<.0001
Age	1	1	18.4240	0.2943	0.5886

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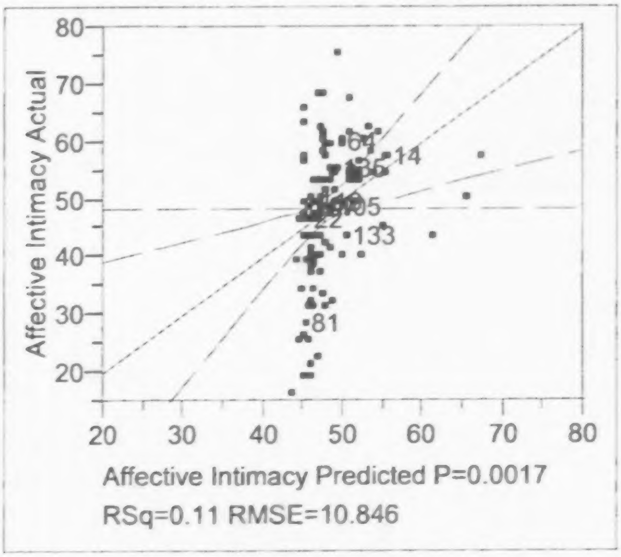
Table 48

Affective Intimacy by IM Use, Controlling for Age

Whole Model Test for Affective Intimacy



Summary of Fit

RSquare	0.112536
RSquare Adj	0.095947
Root Mean Square Error	10.84569
Mean of Response	48.27273
Observations (or Sum Wgts)	110

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	2	1596.015	798.007	6.7841
Error	107	12586.304	117.629	Prob > F
C. Total	109	14182.318		0.0017

Effect Tests

Source	Nparm	DF	Sum of Squares	F Ratio	Prob > F
IM actual use (hrs)	1	1	1501.5759	12.7654	0.0005
Age	1	1	290.9121	2.4731	0.1188

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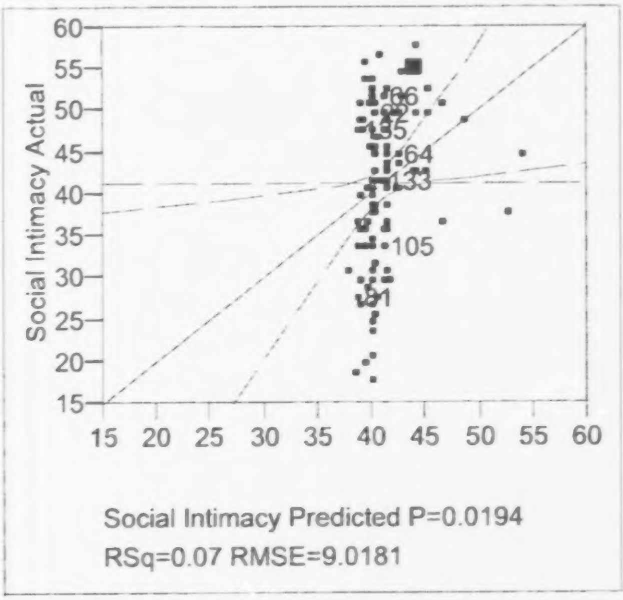
Table 49

Social Intimacy by IM Use, Controlling for Age

Whole Model Test for Social Intimacy



Summary of Fit

RSquare	0.072388
RSquare Adj	0.054719
Root Mean Square Error	9.018105
Mean of Response	41.14815
Observations (or Sum Wgts)	108

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	2	666.3763	333.188	4.0969
Error	105	8539.2533	81.326	Prob > F
C. Total	107	9205.6296		0.0194

Effect Tests

Source	Nparm	DF	Sum of Squares	F Ratio	Prob > F
IM actual use (hrs)	1	1	606.43991	7.4569	0.0074
Gender	1	1	8.21293	0.1010	0.7513

Table 50

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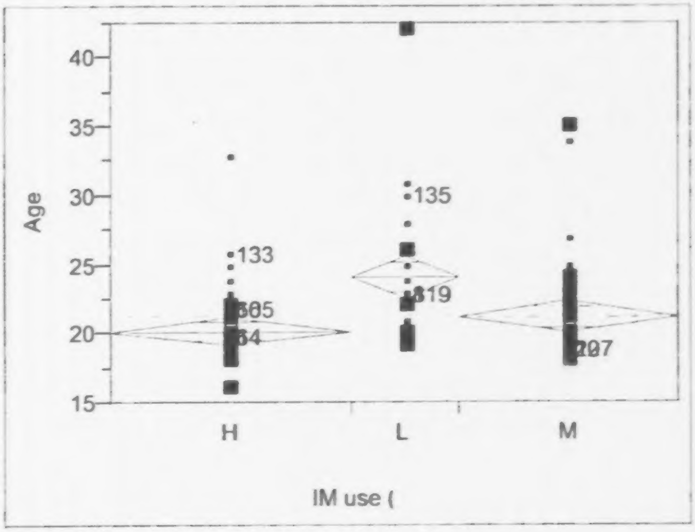
ANOVA of Age by IM Use (ordinal)

Oneway Analysis of Age By IM use (Ordinal)*



Summary of Fit

Rsquare	0.137292
Adj Rsquare	0.121462
Root Mean Square Error	3.607665
Mean of Response	21.32143
Observations (or Sum Wgts)	112

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
IM use (Nominal)	2	225.7663	112.883	8.6731	0.0003
Error	109	1418.6622	13.015		
C. Total	111	1644.4286			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
H	48	20.1667	0.52072	19.135	21.199
L	21	24.0952	0.78726	22.535	25.656
M	43	21.2558	0.55016	20.165	22.346

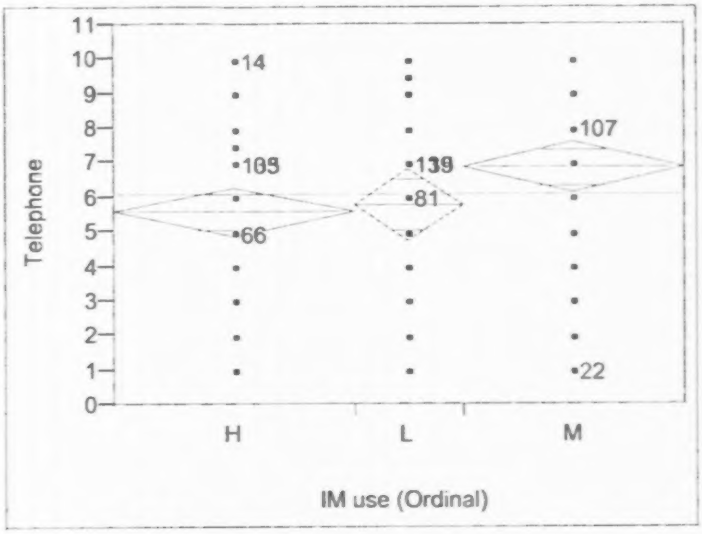
Std Error uses a pooled estimate of error variance

* H = high IM use, L = low IM use, M = moderate IM use

Table 51

ANOVA of Telephone Use by IM Use (ordinal)

Oneway Analysis of Telephone By IM use (Ordinal)*



Summary of Fit

Rsquare	0.059461
Adj Rsquare	0.042044
Root Mean Square Error	2.43386
Mean of Response	6.108108
Observations (or Sum Wgts)	111

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
IM use (Nominal)	2	40.44569	20.2228	3.4139	0.0365
Error	108	639.75702	5.9237		
C. Total	110	680.20270			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
H	47	5.56383	0.35502	4.8601	6.2675
L	21	5.78571	0.53111	4.7330	6.8385
M	43	6.86047	0.37116	6.1248	7.5962

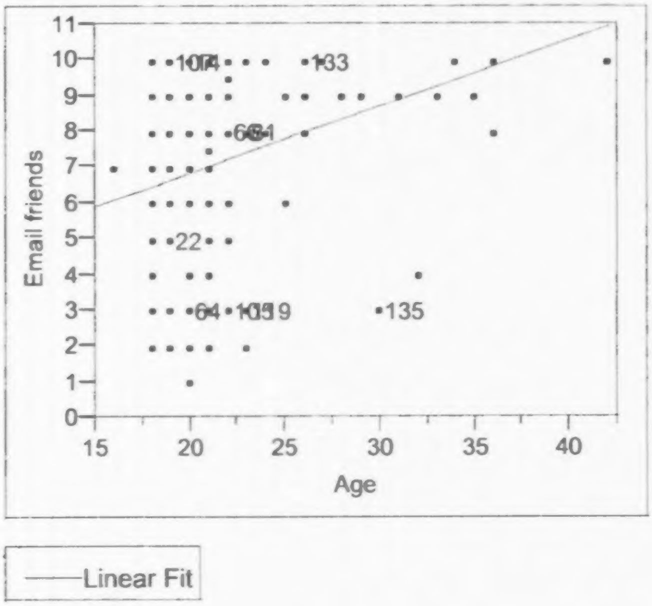
Std Error uses a pooled estimate of error variance

* H = high IM use, L = low IM use, M = moderate IM use

Table 52

E-mail to Friends by Age Graph

Bivariate Fit of E-Mail friend By Age



Linear Fit

Email friends = 3.0286888 + 0.1894004 Age

Summary of Fit

RSquare	0.079934
RSquare Adj	0.072003
Root Mean Square Error	2.551291
Mean of Response	7.084746
Observations (or Sum Wgts)	118

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	65.59833	65.5983	10.0780
Error	116	755.05421	6.5091	Prob > F
C. Total	117	820.65254		0.0019

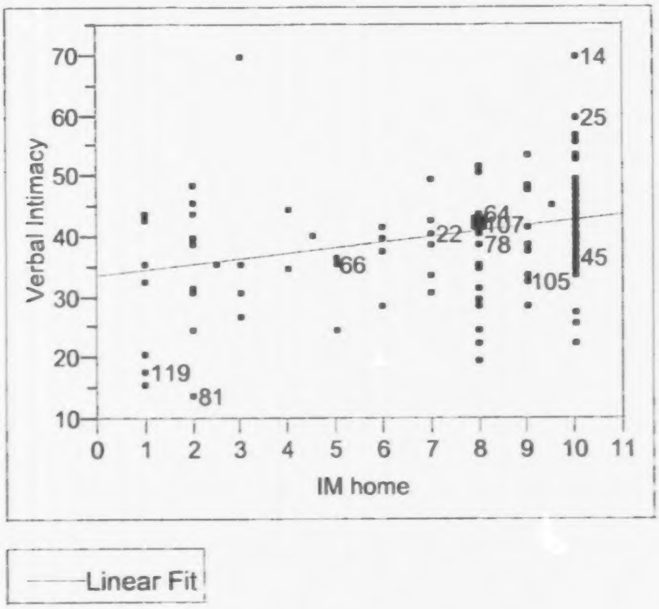
Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	3.0286888	1.299075	2.33	0.0215
Age	0.1894004	0.059662	3.17	0.0019

Table 53

Verbal Intimacy by IM Home Graph

Bivariate Fit of Verbal Intimacy By IM home



Linear Fit

Verbal Intimacy = 33.568662 + 0.9178016 IM home

Summary of Fit

RSquare	0.176956
RSquare Adj	0.078137
Root Mean Square Error	9.011812
Mean of Response	40.13393
Observations (or Sum Wgts)	115

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	865.946	865.946	10.6627
Error	113	9177.041	81.213	Prob > F
C. Total	114	10042.987		0.0014

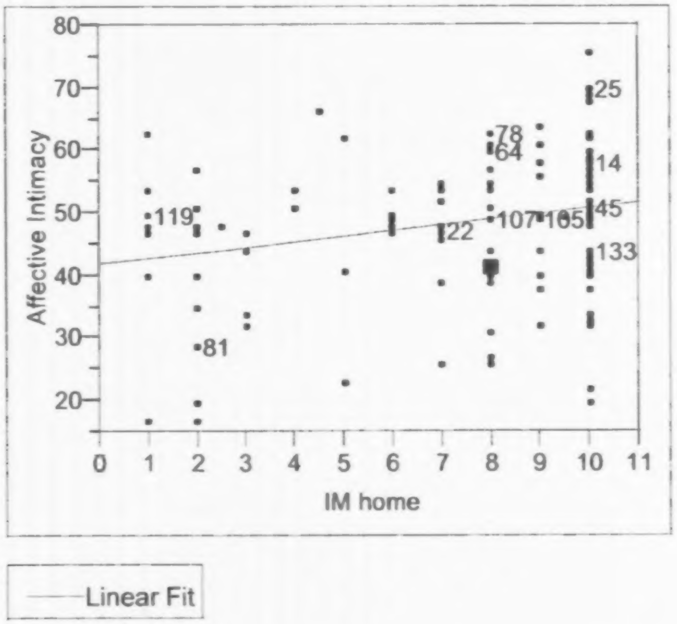
Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	33.568662	2.269359	14.79	<.0001
IM home	0.9178016	0.281071	3.27	0.0014

Table 54

Affective Intimacy by IM Home Graph

Bivariate Fit of Affective Intimacy By IM home



Linear Fit

Affective Intimacy = 41.766417 + 0.8978819 IM home

Summary of Fit

RSquare	0.048496
RSquare Adj	0.040149
Root Mean Square Error	11.94304
Mean of Response	48.5431
Observations (or Sum Wgts)	116

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	828.757	828.757	5.8103
Error	114	16260.528	142.636	Prob > F
C. Total	115	17089.284		0.0175

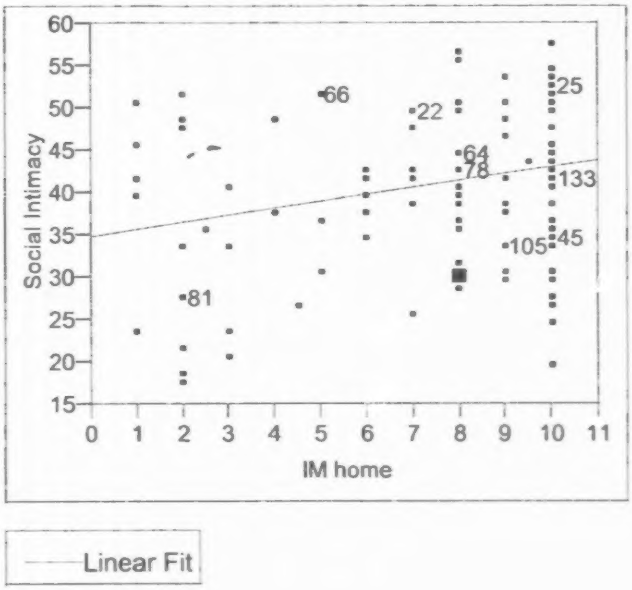
Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	41.766417	3.02216	13.82	<.0001
IM home	0.8978819	0.372495	2.41	0.0175

Table 55

Social Intimacy by IM Home Graph

Bivariate Fit of Social Intimacy By IM home



Linear Fit

Social Intimacy = 34.801822 + 0.8248315 IM home

Summary of Fit

RSquare	0.065367
RSquare Adj	0.057023
Root Mean Square Error	9.251187
Mean of Response	41.03509
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	670.400	670.400	7.8332
Error	112	9585.460	85.584	Prob > F
C. Total	113	10255.860		0.0060

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	34.801822	2.389741	14.56	<.0001
IM home	0.8248315	0.294711	2.80	0.0060

Liberating Friendships through IM? Examining the Relationship between Instant Messaging and Intimacy

Abstract

This study explores the relationship between Instant Messenger use and intimacy between friends. Results showed IM use was positively associated not only with affective intimacy, but also with verbal and social intimacy. Findings are consistent with the Relationship Liberated perspective of Computer-Mediated-Communication, and suggest that IM promotes rather than hinders intimacy. Moreover, frequent conversation via IM actually encourages the desire to meet face-to-face. Theoretical as well as practical implications of the results are discussed.

CT+P

Running head: News in Print and Broadcast Websites

Jung-Sook Lee Competition

News on the Web:
The Degree of Print and Broadcast Top News Convergence in New Media

Jin Xu

A. J. Baltes

School of Communication Studies

Bowling Green State University

March 2003

Jin Xu
320 North Prospect St. #5
Bowling Green, OH 43402
419-354-1232
jinxu@bgnet.bgsu.edu

A. J. Baltes
360 Colony Lane #8
Bowling Green, OH 43402
419-354-0552
abaltes@bgnet.bgsu.edu

Jung-Sook Lee Competition

Abstract

This study examines how print and broadcast sites converge with respect to top story updating and story depth. Samples consisted of all the real time updates in twenty randomly selected 24-hour periods collected simultaneously from seven print and four broadcast websites by an automated procedure. Analysis focused on front-page updating, individual story updating, times of updating, distinct story output, and story length. The findings show that there is little significant difference between the print and broadcast sites in most of these areas. The implications of the findings and further directions of research are discussed.

Jung-Sook Lee Competition

News on the Web:

The Degree of Print and Broadcast Top News Convergence in New Media

With its capacity to deliver text, still or animated images, audio and video, the World Wide Web is a new media platform where various traditional media news organizations have their presence. The Web distributes multimedia content instantly, making it possible for the websites of traditional media to report breaking news and to broaden and deepen their content base (Colon, 2000).

With promises of communication and information anytime, anywhere, and in any form (Vince, 2001), media convergence is leading toward a period of transition and transformation (Jenkins, 2001), which will fundamentally change the way of news consumption. Online news has been accepted as an alternative news source and is gaining popularity (Colon, 2000). Breaking news updates are routinely read and/or watched (Palser, 2000). Besides, additional context or perspective is of increasing importance to the news consumer, especially younger audiences (Pavlik, 2001).

The way of news production will undergo change, as well. The Web has provided established news organizations the potential to publish in all possible media forms, although it has been substantiated that plain text and still pictures are at present the mainstay of online broadcast as well as online print (Palser, 2000). It is believed that as online journalism matures it will provide increasingly compelling news content.

Journalists will become more comfortable with reporting online, and online news operations will develop the necessary culture and newsroom policies to manage in a real-time, twenty-four-hour news environment (Pavlik, 2001).

The Web will alter journalism practices, as is always the case with technology that influences, constrains and structures the way journalists work. Studying how the websites of traditional media adapt themselves online help us understand and predict the development of online news. Most studies have focused on content analysis or featured the websites of a single offline medium (Lin and Jeffres, 2001). Online news updating has been studied by surveys of online editors, but such investigations yield little detail and lack accuracy. Similarly, real time performance studies have been neglected. This investigation is designed to fill the gap. It explores how the traditional practices of print and broadcast converge on the Web by examining real time performance of the websites of eleven large newspapers or TV networks. More specifically, it looks into the similarities and/or differences in top news updating and story depth.

Literature Review

Related literature centers on the nature of convergence and its effect on journalism and the distinct practices of newspapers and television with regard to news reporting.

Convergence has been an ongoing process. It was initially applied to media content, referring to a tendency of news organization of different media types to duplicate content (Reese & Danielian, 1988). With the arrival of satellite broadcasting, computer-based text and image information services, and the Internet, convergence has taken place on new levels, those of media forms and channels of distribution, ushering in the age of new media (McQuail, 1998).

The concept of media technological convergence was introduced in the early 1980s in recognition of the fact that computer digitalization had already abolished the difference between written word, sound and moving or still pictures (McQuail, 1998). This was accelerated and made ubiquitous by the Internet, where a fundamental technological transformation is beginning to crystallize: the convergence of computing and telecommunications (Pavlik, 2001) that provides a medium to integrate all traditional media (Vince, 2001). One of the most basic trends in this new media environment is the convergence of multimedia and networked communications (Pavlik, 1998), with practically no constraints on time and space. Newhagen and Rafaeli (1995) spoke of four defining qualities that convergence has brought about: (1) multimedia (text, voice, pictures, animation, video); (2) hypertextuality instead of linear texts determined by the text author; (3) synchronicity (communication can be synchronous or asynchronous); and (4) interactivity.

From a practitioner's perspective, "convergence is the coming together of all forms of mediated communications in an electronic, digital form" (Pavlik, 1998, p. 134). .It is the blending of different media (Wolk, 2001), the union of audio, video and data communications into a single source, received on a single device, delivered by a single connection (Vince, 2001). It is also the "integration or interface between and among media systems or organizations" (Dennis & Pavlik, 1993, p. 2).

In a broader sense, Jenkins (2001) summed up convergence as five-fold processes. The first, and the most relevant to this research, is technological convergence.

It is the digitization of all media content, what Negroponte (1996) labeled "atoms to bits" transformation. When words, images and sounds are converted into strings of zeros and ones, the potential relationships between them are expanded, enabling them to flow across platforms. The other four processes are economic, social, cultural and global convergences.

Media convergence occurs at various intersections of media technologies, industries, content and audiences (Jenkins, 2001). It is like a crossing of paths or marriage, which results in the transformation of each converging media, as well as the creation of new media (Fidler, 1997). The multiple forms of media convergence are leading toward a digital renaissance and as new media creates new social and intellectual environments, one would expect society to be irrevocably changed (Pavlik, 1998). With regard to journalism, Pavlik predicted that by the end of the first two decades of the twenty-first century the media of news delivery may have little in common with the media of today (Pavlik, 2001).

Pavlik (2001) posited four ways in which journalism would be transformed. First, the nature of news content is inevitably changing. There might be a redefinition of news, as some news executives foresee. Second, the way journalists do their work is being retooled. Journalists from all traditional media are on the same technical footing to use the Web as a production and distribution medium. With the abundance of software applications, gathering, processing and delivering a piece of textual information is as simple, or hard, as doing a clip of video, depending on how well one works with different applications (Preston, 1998). Third, the structure of the newsroom and news industry is undergoing a fundamental transformation. And fourth, new media are bringing about a realignment of the relationships between and among news organizations, journalists, and their publics. As a result, news has become much more fluid and is in a constant state of flux. Updates should be made continuously to enable better representation of events and processes in real life. With regard to news content, convergence has brought together diverse sources, need-to-know and want-to-know stories (Wolk, 2001), as well as current news and archived stories (Ward, 2002).

The type and distinction of traditional journalism needs to be viewed in new light. Traditionally, newspapers and television both have performed vital but different public services. Each has its own strengths, weaknesses, and particular usefulness. Newspapers bring a rich, detailed account of yesterday to enable citizens to remain in touch with numerous aspects of contemporary life in their community, country and world. They publish more news stories and in greater depth (Sownie, 2002) and are the medium most sought after for background, history, context, and explanation (Lewis, 1984). A serious newspaper sees its mission as more than just covering public events: it wants to uncover hidden information (Sownie, 2002).

Not only did television alter news reporting and the definitions of news, but more profoundly it transformed the public's relationship to the news (Sownie, 2002). It doesn't just tell people what happened. It shows them, bringing great events to the public and allowing them to participate vicariously in the making of history. It is faster than an AP bulletin, and right in the home (Wolk, 2001). Live report and rolling television news programs often pride themselves on their immediacy (Ward, 2002), which gives the medium much of its power and attractiveness (Lewis, 1984). Online all these may change.

To sum up, newspapers emphasize depth while television underscores timeliness (Wolk, 2001). Convergence enhances the discursiveness of both (Hall, 2001). It has intermingled the speed of broadcast news, the depth of print journalism and the limitless information capacity of the Internet (Sownie, 2002). Therefore, it is meaningful and important to examine how the practices of newspapers and television have changed to adapt to the news publication in the era of convergence.

Research Questions

Convergence has brought about new look in online news. Print and broadcast networks take advantage of one another's strengths and are producing increasingly compelling news content. While print sites report breaking news and frequently update stories,[1] broadcast sites go into considerable depth on stories that get only a minute or two of treatment in television (Pavlik, 2001). The issues of updating and story depth are the focus of our research questions, which are intended to quantitatively assess these observed outcomes of convergence.

Wire services have become a ubiquitous news provider for the Internet. Even the major newspapers and television networks, producing fresh news stories for their Internet sites all day long, use wire services for breaking news and updates on their sites (Sownie, 2002). This suggests that wire services may set the tempo of the updating on both print and broadcast sites.

Updating occurs on two levels: front page updating and individual story updating. The agenda-setting function of journalism is still important in the new media age and the most important story should be apparent instantly to the reader (Pavlik, 2001). As it is possible to display only a limited number of stories or headlines effectively on an opening screen, a breaking story will cause updating in the lineup of top stories or headlines. This is what we call updating at headline position. As the event or issue a story reports on develops, it generates a need to update the story itself. This we call a story updating.

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[1] Xu, J. (2003). Keep up with time: A study of top story updates in seven U.S. online newspapers.

RQ1 - Is there a significant difference in updating at headline positions between print and broadcast sites?

RQ2 - Is there a significant difference in updating to individual stories between print and broadcast sites?

One of the important indicators of depth is story length. Traditionally, newspapers publish news stories that are significantly longer than television news stories (Sownie, 2002). Publishing online may alter this journalism practice. Aronson and Sylvie's study (1996) on real-time financial news supports this assumption. They found that stories are shorter, are built in several takes, and are immediately disseminated. This contrasts with the practice of integrating information into a single story and arranging that information in the most critical order.

Updating a story does not necessarily lead to the continuous growth in its size. The value added by traditional journalism may take the form of hyperlinking, or in Pavlik's term (2001), contextualization. Links, easily accessible background material, and effective search tools allow the user to find additional material to help place the current story into its historical or other context. Fredin (1997) conceived online story as hyperstory. One single story may consist of many "sections or blocks" (p. 2), which are interlinked and form a network of computer files to be accessed by the user. This is another reason for not integrating information into a single story.

Chunking is also a characteristic of online publishing that determines the size of a news story. Popularized by usability analyst Jakob Nielsen (2000), the concept builds on the fact that individuals normally do not read, but rather scan Web pages. Hence, because writers for news Websites generally adhere to usability axioms, chunking can affect story size.

All these aspects of online publishing are expected to influence how a story is written. Breadth and depth may not manifest in the length of story. In this context, our third research question is to find out how print and broadcast sites converge in story length.

RQ3 - Is there significant difference in the length of story between print and broadcast sites?

Method

Samples

Purposive sampling was used. Websites of seven newspapers and four television networks were selected. The newspapers were *Chicago Sun Times*, *Houston Chronicle*, *New York Daily News*, *Mercury News*, *San Francisco Chronicle*, *USA Today*, and *Washington Post*. They were selected from a list of top 100 newspapers in the U.S., published in 2002 by Editors & Publisher. Three criteria of selection were used: large circulation in a print version, no requirement for login, and from different geographical areas (e.g. northeast, middle west, etc). The networks were ABC, CBS, FOX and MSNBC.[2]

Constructs

The constructs of updating to be examined include number of update and interval between updates, distinct story output, breathing story and time of update. *Number of update* is the count of average number of updates in a specified period. It indicates how many updates per headline position or per story can be expected during the period. *Interval between updates* is the time elapsed, in minutes, between two consecutive updates. It indicates how frequently an update is made and how updates are spread out during the period. *Distinct story output* refers to the average number of different stories (determined by the number of different titles used) a site publishes in a specified period, such as 24 hours used in this research. It is, to some extent, an indicator of breaking story reporting. *Breathing story* refers to the story that has been modified at least once after being posted. It is an indicator of the effort to keep a story fresh, accurate and error-free. Finally, *time of update* indicates the average number of updates made in a specific hour of the day. It is an indicator of news cycle of the site studied. The number, interval and time of update can be applied to both headline position and individual breathing story.

Procedures

To study updating of top stories it is important to regularly and continuously sample the sites for the top stories at specific moments in time. Top stories are identified

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[2] They can be respectively accessed at: http://www.suntimes.com/index/news.html, http://www.chron.com/, http://www.nydailynews.com/news/, http://www.bayarea.com/mld/mercurynews/, http://www.sfgate.com/chronicle/, http://www.usatoday.com/news/digest.htm, http://www.washingtonpost.com, http://abcnews.go.com/, http://www.cbsnews.com/sections/home/main100.shtml, http://foxnews.com/topstories/, http://www.msnbc.com/news/news_front.asp.

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as headlines in the homepage or news front page of a print or broadcast site. Due to the change of headlines, we watched headline positions for updating of top stories during the sample collection. A headline position is a fixed place in the homepage or news front page where a headline is found and the story is accessed via an embedded link. It is usually fixed in the layout of the page, which is relatively stable, so we can always go to the same place to find the headlines of the moment and access the corresponding stories. As a complementary means to identify top stories, the regularity in the names of the links was also evaluated. If there is change in one specific headline and its story, subsequent sampling will detect and note it. Varying with the number of top stories a site puts out, between six and twelve headline positions in each site were monitored.

A change in top story is detected when an iteratively sampled headline position reveals a change in stories. In real-time, one of the four situati[illegible]plies at a headline position: first, both headline and story change -- a different story is published; second, neither headline nor story changes – no update is made; third, only story changes – update is made to the story; and fourth, only the wording of headline changes – update is made to the homepage headline but not to the story accessed via it. The last situation was outside the scope of this study and was ignored. The first three situations were captured by comparing the subsequent story with the corresponding previous one. Thus, the real-time data collection used in this study was to continuously sample stories of up to twelve headline positions, five times an hour at regular twelve-minute intervals. Each time a story was obtained it was compared with the previous one in the same headline position. If change was detected it was saved on local disk for further analysis. Otherwise, it was discarded.

The twelve-minute granularity was chosen as the result of two preliminary studies of updating. As a change can be made at any time, the smaller the granularity the more accurate the result. In practice, however, small granularity produces too many checks at the web sites and other technical difficulties. A pilot study of two sites, one print and one broadcast, was conducted to determine the granularity, at thirty- and fifteen-minute intervals. Both pointed to smaller granularity, thus twelve-minute granularity.

Considering the traditional news cycle of print newspapers and broadcast television, the data collection was done automatically in disconnected 24-hour periods, in which 120 times of sampling were performed. Meanwhile, a log was kept to record the time of collections, the numbers of same and different stories, their names and other information. The periods were randomly selected and spread over a period from September 2002 to January 2003. Data that fell short of the 24-hour observation requirement due to disruptions were discarded. Altogether, 480 hours of real-time performance of the online newspapers and networks was captured in the data. No very big events that call for sustained attention, such as stock market crash or air disaster, occurred during the data collection periods.

Data processing and data analysis

Before analysis, the collected stories were cleaned, removing all extraneous strings of symbols except the essential components, the title, subtitle, lead and body.

Update detection is accomplished by comparison made on paragraph level. This reflects addition and/or deletion of paragraph(s), sentence(s) or word(s), change of number(s), punctuation(s) and other symbol(s) as well as change of order in any one of them. Addition or deletion of white spaces was not counted as change and was ignored.

In order to study both updating at headline positions and updating to individual stories, two types of comparisons were made — one on the consecutive stories of the same headline positions and the other on the consecutive stories under the same titles. Update in the subsequent story from the same headline position was detected by comparing it with the previous story at the same headline position. Update in the subsequent story with the identical title was detected by comparing it with the previous story of that title. The numeric data from the comparisons were processed with SPSS, where independent sample t-tests were performed with confidence level at .05, two-tail.

Result

The Web version of *New York Daily News* invariantly updated its top stories once a day and was excluded from the analysis. Also, because there is considerable variation in updating among print sites,[3] two lines of analyses were pursued: one on all remaining six print sites and four broadcast sites (all-site analysis), the other on the three most active sites from both print and broadcast (most-active-site analysis). The most active sites were those with the most updates to individual stories, which were online versions of *Houston Chronicle*, *USA Today*, *Washington Post,* ABC news, FOX news and MSNBC news.

In the all-site analysis, a statistically significant difference was observed in both update interval at headline position, $t = -15.05$, $p < .001$, and update number at headline position, $t = 12.62$, $p < .001$. Broadcast sites put out significantly more numbers of updates with significantly shorter interval between updates than print sites. Both update interval and update number at the individual story level were not statistically significant, $t = .39$, $p = .69$ and $t = -.04$, $p = .97$ respectively. In the most-active-site analysis, no statistically significant difference was found in update interval at headline position, $t = 1.09$, $p = .28$, update number at headline position, $t = 1.90$, $p = .06$, update interval for individual story, $t = 1.45$, $p = .15$ and update number for individual story, $t = -.68$, $p = .51$. See Table 1 for means, standard deviations and differences for update intervals and numbers both at headline positions and for individual story.

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[3] Xu, J. (2003). Keep up with time: A study of top story updates in seven U.S. online newspapers.

TABLE 1

Update Time and Number Means by Media Type

	Broadcast		Print			
	M	s.d.	M	s.d.	Difference	
All sites						
Update interval at HP	131.10 (*N*=838)	101.33	270.84 (*N*=1182)	295.72	-139.73	$p<.001$
Update Number at HP	12.38 (*N*=838)	5.54	8.93 (*N*=1182)	6.69	3.45	$p<.001$
Update interval in story	91.69 (*N*=751)	124.03	89.37 (*N*=728)	101.94	2.32	$p=.69$
Update number in story	1.87 (*N*=751)	1.45	1.87 (*N*=728)	2.03	-.004	$p=.97$
Three most active sites						
Update interval at HP	138.46 (*N*=634)	113.93	131.88 (*N*=554)	90.85	6.57	$p=.28$
Update Number at HP	11.95 (*N*=634)	5.90	11.29 (*N*=554)	5.98	.66	$p=.06$
Update interval in story	86.01 (*N*=656)	97.36	78.40 (*N*=558)	83.09	7.61	$p=.15$
Update number in story	1.96 (*N*=656)	1.51	2.03 (*N*=558)	2.26	-.08	$p=.51$

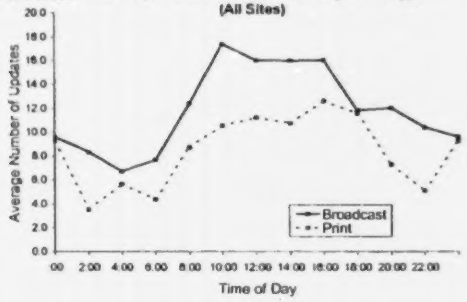
In both all-site and most-active-site analyses, output at headline position was statistically significant, $t = 3.91$, $p < .001$ and $t = 3.17$, $p < .05$ respectively. Broadcast sites published significantly more distinct stories than print sites. Breathing story ratios were not statistically significant either for the all-site analysis or for the most-active-site analysis, $t = 1.84$, $p = .07$ and $t = -1.36$, $p = .18$ respectively. See Table 2 for means, standard deviations and differences for output at headline position and breathing stories ratios.

TABLE 2

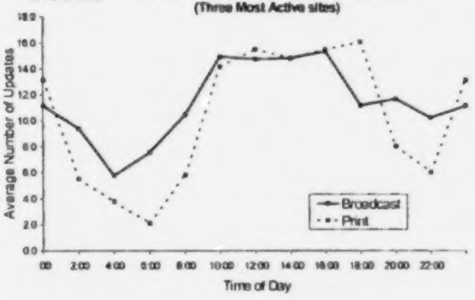
Output and Ratio Means by Media Type

	Broadcast		Print		Difference	
	M	s.d.	M	s.d.		
All sites (Broadcast: *N* = 72, Print: *N* = 108)						
Output at HP	3.88	1.08	3.19	1.19	.68	p <.001
Ratio of breathing story	.24	.12	.21	.14	.035	p =.07
Three most active sites (Broadcast: *N* = 55, Print: *N* = 53)						
Output at HP	3.90	1.20	3.29	.76	.61	p <.05
Ratio of breathing story	.28	.10	.31	.10	-.03	p =.18

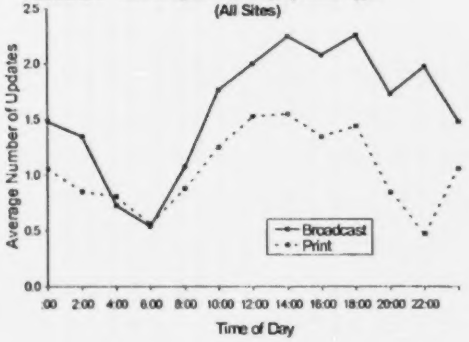
GRAPH 1 Time of Update at Headline Position by Media Type (All Sites)



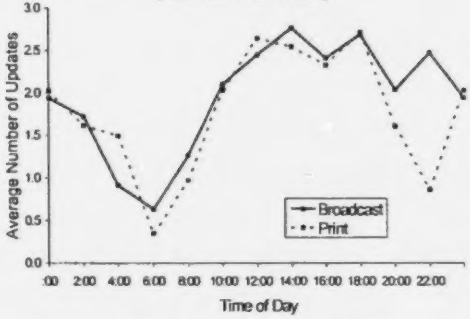
GRAPH 2 Time of Update at Headline Position by Media Type (Three Most Active sites)



GRAPH 3 Time of Update to Story by Media Type (All Sites)



GRAPH 4 Time of Update to Story by Media Type (Three Most Active Sites)



With regard to time of update, trends were evident in both print and broadcast sites. Most of the updates were made during daytime. There was certain degree of matches between print and broadcast for highs and lows in the number of updates at

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specific hour of the day, with the best fit in the segment between 6:00 am and 20:00 pm. Two observations could be made about the matches: (1) more coincidences of highs and lows were found for time of update to story than time of update at headline position (Graphs 3 and 4 as compared with Graphs 1 and 2: 3 vs. 1 and 4 vs. 2); (2) trend lines overlapped each other more in the most-active-site comparison than the all-site comparison (Graphs 2 and 4 as compared with Graphs 1 and 3: 2 vs. 1 and 4 vs. 3). Furthermore, the best fit was found in time of update to story in the most-active-site comparison (Graph 4), and the worse in time of update at headline position in the all-site comparison (Graph 1).

TABLE 3

Mean Levels of Words and Paragraphs Per Story and Words Per Paragraph by News Type

	Broadcast		Print			
	M	s.d.	M	s.d.	Difference	
All sites						
Breathing story (Broadcast: *N* = 1499, Print: *N* = 1469)						
Words per story	724.27	353.91	755.92	440.36	-31.66	*p* =.03*
Paragraphs per story	24.16	10.90	21.05	11.28	3.11	*p* <.001
Words per paragraph	29.82	7.17	36.89	14.90	-7.07	*p* <.001
Non-breathing story (Broadcast: *N* = 2469, Print: *N* = 3537)						
Words per story	636.71	336.62	638.79	418.51	-2.07	*p* =.83
Paragraphs per story	21.21	10.94	18.37	10.94	2.85	*p* <.001
Words per paragraph	30.16	8.55	35.37	14.11	-5.17	*p* <.001
Three most active sites						
Breathing story (Broadcast: *N* = 1309, Print: *N* = 1128)						
Words per story	722.57	344.85	748.17	446.32	-25.60	*p* =.12
Paragraphs per story	24.18	10.25	19.90	10.28	4.28	*p* <.001
Words per paragraph	29.47	5.73	38.36	16.32	-.889	*p* <.001
Non-breathing story (Broadcast: *N* = 1788, Print: *N* = 984)						
Words per story	640.93	349.45	648.02	352.87	-7.09	*p* =.61
Paragraphs per story	21.33	10.39	20.09	11.19	1.24	*p* <.05
Words per paragraph	29.79	7.07	33.01	7.98	-3.22	*p* <.001

*greater than .05 two-tail

With regard to story length, no statistically significant difference was found in the number of words per story in all these cases: (1) all-site breathing story, $t = -2.15$, $p = .03$, (2) all-site non-breathing story, $t = -2.12$, $p = .83$, (3) most-active-site breathing story $t = -1.57$, $p = .12$, and (4) most-active-site non-breathing story $t = -.51$, $p = .61$. However, statistically significant difference was found for both number of paragraphs per story and number of words per paragraph in all of the following cases: (1) all-site breathing story, $t = 7.68$ and $p < .001$, $t = -16.42$, $p < .001$, (2) all-site non-breathing story, $t = 9.92$, $p < .001$ and $t = -17.65$, $p < .001$, (3) most-active-site breathing story $t = 10.31$, $p < .001$ and $t = -17.39$, $p < .001$, and (4) most-active-site non-breathing story $t = 2.86$, $p < .05$ and $t = -10.57$, $p < .001$. In all of these cases, print sites have significantly longer paragraphs.

Discussion

The findings suggest that a distinction needs to be made about the print sites that embrace the full potential of the timeliness of new media and those that simply stick more or less to their daily news cycle tradition. The more print sites depart from the old practice, the more they match broadcast sites in timeliness. Overall, active print and broadcast sites are very much like each other with regard to updating and story length. The following discussion focuses on the comparison of the active print and broadcast sites because they are more indicative of the future of online news.

Research question one asks if there is a statistically significant difference in updating at headline position. The answer is negative. First, the difference in the number of updates and the interval between updates is not significant. Secondly, both broadcast and print sites publish updates round-the-clock at every hour of the day, although their highs and lows do not overlap very much. Broadcast sites do publish significantly more distinct stories but the difference is overshadowed by the comparatively large number of total updates at a headline position. And to a lesser degree, the difference is also offset by a larger number of updates to distinct stories of the print sites.

Research question two asks if there is a statistically significant difference in updating to individual stories. The answer is definitely no. There is little difference in either the update number or update interval. Both print and broadcast sites update round-the-clock at every hour of the day and the numbers of updates at specific time of the day are very much like each other throughout the day except in the later evening.

Research question three asks if there is significant difference in the length of story between print and broadcast sites. The answer is no. The average numbers of words are remarkably similar whether they are from breathing or non-breathing stories. However, print sites publish stories with longer paragraphs.

The findings support Pavlik's claim (2001) that it is hard to tell the difference between one provider of breaking news and another. Existing literature suggests that this is due to the commodification of breaking news, and the heavy reliance on news feeds from wire services, which do not go behind or beyond the events of the day (Sownie, 2002; Wolk, 2001). This research extends the literature of such indistinction by providing clear evidence of similarity in timeliness and timing of updates.

The online world is a highly competitive market environment, where established news organizations not only compete against each other, they also compete with other news services native to the Internet and wire services (Hall, 2001; Pavlik, 2001). Existing literature suggests that competitive market environments bring out more news in print newspapers and greater content variety in broadcast television (see Kiernan & Levy, 1999). The findings of this research suggest that, when applying the proposition to online journalism, we need to add another dimension to it: competitive market environments bring out more timely news in either print or broadcast sites. This is based on the findings that, on average, we can expect to read, from any one single headline position, 3.9 stories with different titles plus 1.1 updates on these titles in an active broadcast site, and 3.29 plus 1.02 in an active print site within 24 hours.

Existing literature suggests that print excels in quality and depth of news. It is the medium turned to for background, history, context, and explanation. One line of reasoning suggests that broadcast is essentially a headline service, an inefficient conveyor of factual information. A reason given for that is the small number of words (Sownie, 2002). The findings of this research cast serious doubt on using the number of words as a measure of depth for news stories online, where the direct incorporation of sources into stories, through internal or external links, is a norm rather than exception. Where databases and transcripts and other sources of information have been used in preparing news, readers are given direct access to them (Hall, 2001).

This research has focused on the top stories of print and broadcast sites, which are a very small and highly dynamic portion of the many news and features a print or broadcast site publishes regularly. Just because the sites share some remarkable similarities in limited sphere, it does not follow that they are indistinguishable. On the contrary, this segment is likely the only portion of the sites that insignificant differences could be found. As existing literature suggests, the best national news providers online, whether from print or broadcast, are those that, along with their repurposed content, offer original material designed specifically for the Web (Sownie, 2002). And those with the strongest commitment to independent and original journalism are most likely to find the largest audiences on the Web of tomorrow (Pavlik, 2001). The popularity of these widely recognized print and broadcast sites supports that proposition.

Limitation and Future Direction

As reporting breaking news and updates takes place on a rolling basis, an arbitrarily defined period of 24 hours of data collection was short, unable to capture all the subsequent updates to a breathing story. This, however, was a systematic error and applied to both print and broadcast sites. Thus it had little effect on the comparisons. though it did skew the numbers given in Table 1 (specifically for update interval and update number in story), as well as in Table 2 (specifically for the breathing story ratio), making figures smaller than they actually were.

Further research may be pursued in two directions. First, we could examine the content of the story updates and categorize them in terms of actual content update and purely mechanical changes. Given that the update intervals are relatively short, it is interesting to look into and compare the causes of these modifications. An answer may contribute to our understanding of some of the important issues in online news , such as speed and breadth, and speed and quality. Secondly, it is interesting to look into the ways print and broadcast sites add breadth and depth to the stories and to study how internal and external links are used as well as examine how effectively they contextualize a story.

Conclusion

We can draw three conclusions from the study. First the studied print and broadcast sites are converging in top news update and story length. The extent of convergence in top news updating depends on how far print sites depart from their traditional daily news cycle. The more they do, the more they resemble broadcast sites in timeliness. There is little difference in story length. Secondly, the most active print and broadcast sites are already very much like each other in these two respects. And third, as those active print sites are among the sites of the best recognized and resourceful newspapers in the nation, we can expect them to become the trendsetters, and we can expect other print sites, in general, to follow suit.

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The Transition to Digital Television: Are We There Yet?

James A. Wall
Department of Radio-Television
Southern Illinois University

A paper presented to the Communication Technology and Policy Division
at the Annual Convention of the
Association for Education in Journalism and Mass Communication
July 30, 2003

Digital TV, DTV transition and rollout
Advantages, capabilities, and limitations of digital television
Multicasting, datacasting, enhanced TV
HDTV, High-definition television

ABSTRACT

This paper discusses the current transition from analog to digital television (DTV) and considers the advantages, capabilities, and limitations of DTV from the perspective of both broadcasters and consumers. In addition to high-definition television (HDTV), the impending DTV transition brings to the forefront new technological uses and capabilities for broadcast television including multicasting, datacasting, and enhanced TV. The nation's local broadcasters, faced with government mandated deadlines and an unknown and unpredictable future business model, have invested millions of dollars per station without any guarantees of additional revenue. This study reviews the conversion from a historical perspective, explores the current status of the conversion, and presents a discussion of the remaining unresolved issues which are crucial to the successful rollout of digital television.

Introduction

The broadcast television industry is undergoing a dramatic change from fifty-year old analog transmission methods to a digital delivery system. Digital television is substantially reinventing the entire medium for both the consumer and the industry itself. In a decision with multibillion-dollar implications for television set manufacturers, broadcasters, and consumers, the Federal Communications Commission (FCC) has created an entirely new television system that is incompatible with the one currently in use. An aggressive timetable for the conversion has been established and provides for the eventual replacement of the current system by both broadcasters and consumers. Everything from station transmitters to consumer television sets will be replaced with entirely new devices with new capabilities.

This paper examines the transition to digital television (DTV) in the United States. First, the study reviews the conversion from a historical perspective. Second, it explores the current status of the conversion from both industry and governmental viewpoints. Lastly, the study presents the remaining unresolved issues which are crucial to the successful rollout of digital television.

Background

In 1987, the FCC first began its inquiry into the potential for advanced television services in the United States. (FCC, 1987). Over the course of the next decade, the FCC issued a number of decisions concerning technical, economic, and public policy issues of advanced television services. Nearly ten years later in a major overhaul of the Communications Act of 1934, Congress provided the basic framework for the development of advanced television services over the airwaves with the passage of the

Telecommunications Act of 1996. (47 U.S.C. §336 1996). In addition to reflecting fifty years of technological changes, the Act also laid the groundwork for the future of television.

In the 1996 *Fourth Report and Order* (FCC, 1996), the FCC subsequently described its own vision of the potential uses for the digital spectrum. The FCC commented that:

> The system described by the ATSC DTV standard is generally recognized to represent a significant technological breakthrough....In addition to being able to broadcast one, and under some circumstances two, high definition television (HDTV) programs, the standard allows for multiple streams, or multicasting, of standard definition television (SDTV) programming at a visual quality better than the current analog signal. Utilizing this standard, broadcasters can transmit three, four, five, or more such program streams simultaneously. (FCC, 1996,§5).

In addition to the ability to multicast television programming, the FCC noted the potential uses of the spectrum for datacasting and interactive services.

> It permits the rapid delivery of large amounts of data; an entire edition of the local daily newspaper could be sent, for example, in less than two seconds. Other material, whether it be telephone directories, sports information, stock market updates, information requested concerning certain products featured in commercials, computer software distribution, interactive education materials, or virtually any other type of information access can also be provided. (FCC, 1996,§5).

The FCC recognized that the technical capabilities of the digital system would allow broadcasters to provide a flexible array of services simultaneously in addition to their regular programming.

> It allows broadcasters to send video voice and data simultaneously and to provide a range of services dynamically, switching easily and quickly from one type of service to another. For example, a broadcaster could transmit a news program consisting of four separate, simultaneous SDTV program streams for local news, national news, weather, and sports; then transmit an HDTV commercial with embedded data about the product; then transmit a motion picture in an HDTV format simultaneously with unrelated data. (FCC, 1996,§5).

In April, 1997, the FCC issued the *Fifth Report and Order* that specifically defines how the United States will make the transition to digital broadcasting. (FCC, 1997). The transition strategy required that broadcasters construct a new DTV station and transmit a digital signal concurrently for a period of time, at the end of which the current analog transmitter will be turned off and the existing television channels returned to the government for auction to other wireless uses. (Seel & Dupagne, 2001). The target date for the completion of the transition to digital television is Dec. 31, 2006.

The transition plan specifically required network affiliates in the top 10 markets to put a digital signal on the air by November 1998, stations in the top 30 markets one year later, and the balance of all commercial television stations by May 1, 2002. Non-commercial public television stations had an additional year. During the transition period, stations would construct DTV facilities, and consumers would purchase new receivers or converter boxes. The transition plan also provided that television stations operate two channels: their existing analog channel and a new DTV channel located on the UHF band. When the transition period expired, all analog broadcasts would terminate. (FCC fact sheet, 1998). In effect, the entire VHF television band (channels 2-13) would cease to exist, and current television sets would be obsolete.

Several months later, in connection with the Balanced Budget Act of 1997, Congress made the 2006 surrender date a statutory requirement. (47 U.S.C. §309(j)(14)(A), 1997). However, this requirement can be waived by the FCC for any station that requests an extension in any television market if the Commission finds that:

1. One or more of the big-four network affiliated stations are not broadcasting a digital signal and they have exercised due diligence in complying with the requirement,

2. Digital-to-analog converter technology is not generally available in the market or,

3. 15% or more of the TV households in the market do not subscribe to a multi-channel service that carries one of the over the air digital signals of each television station, and do not have either at least one television receiver capable of receiving the local digital television signals or at least one television set equipped with digital-to-analog converter capable of receiving the signals. (47 U.S.C. §309(j)(14)(B), 1997)

The analog spectrum would not have to be returned to the government until 85% of the entire market has digital sets or at least the capability to receive those signals.

It is also noteworthy that the Communications Act, the Balanced Budget Act, nor current FCC Regulations specifically requires television stations to broadcast in a high-definition television (HDTV) format. The deadline requirements for the digital conversion apply to standard definition (SDTV) signals only. A broadcaster could conceivably meet the deadlines by installing minimum equipment that simply converts analog signals to digital and never broadcast a true high-definition signal. They are not under any immediate obligation to utilize their entire digital spectrum for anything other than SDTV. (Grotticelli, 2001a, p. 40). The FCC only requires that stations provide a free digital programming service that is comparable in resolution and aired during the same time periods as today's analog service. (VanTassel, 2001). In other words, the local stations only need to construct a standard definition (SDTV) digital broadcast station. They are free to do nothing at all in terms of additional programming and services. The decision of what to offer on the new digital channels has been left to the discretion of the individual licensees.

Furthermore, the FCC is allowing stations to initially construct lower power facilities at less cost in order to get the process started. Presently, local stations only have to serve their community of license and do not have to replicate their entire coverage area. Consequently, many viewers in fringe areas probably will not be able to receive DTV signals from these reduced power facilities. (FCC news release, 2001).

Current Status

Number of DTV Stations

Although the FCC and industry groups such as the National Association of Broadcasters (NAB) claim that over 90 percent of the country is now covered by digital television, the estimate is somewhat misleading. The NAB says that there are 621 DTV stations on air in 167 markets that serve 94.29% of the US television households. (NAB, 2002a). According to the FCC, there are 1,688 available commercial and public television DTV channel allocations. 1,540 stations have been granted a DTV construction permit or license as of October 30, 2002. (FCC, 2002a).

The total number of allocated commercial DTV channels is 1,315. There are 562 commercial stations currently on the air with DTV operation representing 42.7% of the total commercial DTV allocations in the country. Only 279 (21.2%) are fully licensed as a full power facility, and the others have special temporary authority (STA's) to operate at low power or from temporary transmission facilities. (FCC, 2002a). Just over 50% of the DTV stations currently operating are operating with STA's. It is therefore inaccurate to say that over 90% of the country has DTV. Further analysis broken down by market size indicates that it is the small markets that have yet to make a successful conversion.

Among the top ten Nielsen DMA markets, 38 of 40 network affiliates are on the air with DTV (95%). Importantly, this category contains a sizeable population and represents nearly 31% of all U.S. television households. (Nielsen, 2001). Network affiliated stations in these markets were to have a digital signal on the air by May 1, 1999.

In markets 11-30, 75 of 79 affiliates (95%) have a DTV signal on the air. When combined with the ten largest markets, the top-30 markets represent stations covering nearly 54% of the television households in the country. (Nielsen, 2001). Network affiliated stations in these markets were required to transmit a digital signal by November 1, 1999.

Nielsen markets 31-75 represent 24.3% of the television households in the country, which now brings the cumulative national household coverage to 78.2%.

(Nielsen, 2001). Stations in these markets had until May 1, 2002 to begin broadcasting a digital signal. However, many were granted waivers and extensions.

There are 135 remaining smaller markets (76-210), representing 21.8% of the U.S. television households, where stations were also to begin broadcasting a digital signal by May 1, 2002. According to the NAB's list of DTV stations currently in operation (NAB, 2002a), 93 markets (68.8%) have at least one television station broadcasting in digital. This is a marked improvement over the previous year where only 24 of these 135 markets, or 17.8%, had one digital station on the air. (NAB, 2001). Many small markets, however, currently do not have a full compliment of network affiliated stations broadcasting in DTV and some have only a single low power station.

About 70% of the country's commercial television stations missed the May 2002 deadline and have applied for extension waivers from the FCC citing economic hardship or unforeseen technical barriers such as tower sighting or equipment availability. (Tarr, 2002). The FCC is intent on limiting the requests for extensions of time and has resolved to see that all stations come into compliance with the mandate within a very short time.

DTV Tuner Mandate

One roadblock to the successful conversion to digital television is the lack of DTV tuners in existing sets. The FCC faced a similar problem during the introduction of the Ultra High Frequency band (UHF channels 14-83) in 1952. At that time, television sets were being manufactured with only VHF tuners that received channels 2 through 13 exclusively. To receive UHF stations, viewers in many markets had to purchase a set-top tuner and specialized outdoor antenna. As a result, Congress created the All Channel Receiver Act of 1962 which required manufacturers to equip new television sets with

UHF tuners. Specifically, the Act required that sets be capable of "adequately receiving *all* frequencies allocated by the Commission to television broadcasting." [emphasis added]. (47 U.S.C.§303(s), 1962). As more dual-band sets were produced, the audience increased. Acceptance of UHF stations grew substantially after the passage of the All Channel Receiver Act and the same could happen with digital. (Williams, 2001, B13).

The parallel to the digital television rollout is obvious. In order for consumers to receive these new digital television signals they must, at a minimum, have some type of an outboard device attached to their television set in order to view DTV programming or purchase a television set with an integrated DTV tuner. The FCC determined that a requirement to include DTV capability in new television sets would help develop the production volume needed to bring DTV receiver prices down quickly to where they are more attractive to consumers and thereby promote the more rapid development of high DTV set penetration.

On August 9, 2002, the FCC issued the *Second Report and Order and Second Memorandum Opinion and Order* which mandated that television set manufacturers include DTV tuners in all TV sets. (FCC, 2002b). The implementation plan is graduated over a period of years, with the largest screen size sets required to convert first. The specific timetable for the phase in of mandated digital tuners is:

1) Receivers with screen sizes 36" and above -- 50% the units must include DTV tuners effective July 1, 2004; 100% of such units must include DTV tuners effective July 1, 2005;

2) Receivers with screen sizes 25" to 35" -- 50% of the units must include DTV tuners effective July 1, 2005; 100% of such units must include DTV tuners effective July 1, 2006;

3) Receivers with screen sizes 13" to 24" -- 100% of all such units must include DTV tuners effective July 1, 2007;

4) TV Interface Devices (videocassette recorders (VCRs), digital versatile disk (DVD) players/recorders, etc.) that receive broadcast television signals -- 100% of all such units must include DTV tuners effective July 1, 2007. (FCC, 2002b, 40).

The Consumer Electronics Association filed suit in October 2002 to block the tuner mandate, however, the litigation is currently being reconsidered by the manufacturer's association because of concern that a prolonged court challenge might alienate the FCC against the consumer electronics industry in future decisions. (News editors, 2002a).

Programming

Today, the major broadcast networks have increased the number of hours of primetime and non-primetime programming in high definition to over 2,000 hours. (NAB, 2002b). Robert Wright, Chairman and Chief Executive Officer of NBC, affirmed the network's commitment to digital programming stating that "the network plans to increase its high definition programming to 60% of its prime time and late night lineup, plus special events, movies and sports." (Digital TV Transition, 2002a). Speaking on behalf of the NAB before a recent congressional hearing, Dispatch Broadcast Group President Michael Fiorile said that "in terms of the available hours of digital programming, the DTV transition has far outpaced another comparable transition when the industry moved from black and white to color. During the first years of color television in the 1950's, only 68 hours were offered to viewers." (Digital TV Transition, 2002b).

CBS is currently leading the programming content race with twenty regular series being offered in high definition. ABC offers twelve regular series and NBC has eight. Sports broadcasts will increasingly be presented in high definition with networks currently planning to broadcast the Superbowl, NBA finals, NCAA basketball championships, and NCAA football during the 2002-03 season in high definition. (NAB, 2002b).

Sales of Digital Televisions

The Consumer Electronics Association (CEA) reports that October 2002 factory-to-dealer sales of digital television products set an all-time record with unit sales totaling nearly 300,000 units. These figures mark a 12% increase over the previous month and a 56% unit increase over October 2001. (CEA, 2002). The CEA projects that 2.7 million DTV products will be sold in 2002. These sales projections must be kept in perspective because total analog television set sales approached 30 million units in 2001, which means that digital will only achieve a 9% share. (CEA, 2002).

The CEA projects that unit sales will increase to 4 million in 2003, 5.4 million in 2004, 8 million in 2005 and 10.5 million in 2006. However, Cahners In-Sat Group research firm reported that fewer than one-tenth of 1 percent of TV households were equipped with either the digital sets or set-top boxes needed to receive the signals in 2001. (Kanaley, 2001, C7). Color television took decades to achieve even a 50% household penetration and some predict that digital will be no different.

Unresolved Issues

As broadcasters make the transition to digital television, numerous issues remain unresolved. These issues include cable carriage of the new DTV channel and dual-carriage of both analog and digital channels during the transition. Copyright concerns are also at the forefront of the current debate in Congress as content producers fear that piracy will run rampant because digitalization results in a perfect copy of the original work. In addition, television set compatibility, interoperability, and standardization of formats between broadcast and cable have yet to be resolved. And lastly, consumer acceptance and adoption of the new technology is unpredictable.

Cable Carriage

Cable is the preferred provider for media delivery with nearly 70% of the households in America receiving their television from cable. (Nielsen, 2000). The success of broadcast DTV could depend largely on whether cable systems will carry these new DTV signals. There are two separate issues regarding the "must carry" obligations of cable systems. The first is mandatory cable carriage of both the existing analog channel and the new digital channel. The second is mandatory carriage of multiple digital signals and associated data that is generated by a single DTV station engaged in multicasting. The current law requires cable systems to carry a station's primary video. The issue is over whether "primary" means one signal or many. (Hearn, 2002).

The cable industry believes that requiring cable operators to carry a second channel that duplicates a station's analog programming would provide nothing new for cable customers while limiting the use of the cable system's own spectrum. Furthermore, the cable industry argues that mandatory carriage of multiple DTV channels would unfairly discriminate against cable programmers vying for space on a system and provide preferential treatment of broadcasters by guaranteeing carriage of up to six individual channels that conceivably may amount to nothing more than low-budget or duplicative repurposed broadcast programming. (DTV Transition, 2002c).

The broadcast industry insists that cable carriage is essential for the successful rollout of digital television. Ensuring carriage of all free, over-the-air DTV services would help achieve Congress' clear intention of preserving a robust free, over-the-air broadcasting system for both cable and non-cable homes and would expand the available DTV services for the benefit of all consumers. (DTV Transition, 2002b).

Copyright and Copy Protection

In March 2002, legislation was introduced that is designed to establish copy protection standards for digital broadcasts. The Consumer Broadband and Digital Television Promotion Act (S. 2048) provides for the inclusion of a "broadcast flag" technology that would watermark digital broadcasts and prevent unauthorized duplication. (NAB, 2002c). DTV receivers would be equipped with a device to recognize these broadcast flags and indicate what digital programming can or cannot be copied for home use. The copy protection, which is strongly backed by Hollywood, is designed to prevent the unauthorized redistribution of flagged DTV broadcasts over the internet. (Leopold, 2002).

Interoperability – Plug & Play

A big impediment to DTV is the lack of standardization among the various devices such as set-top boxes and digital tuners. Industry insiders have coined the phrase "plug and play," meaning that consumers can purchase DTV sets from their local retailers, bring them home, plug them into their cable jack, and begin enjoying digital television. (DTV Transition, 2002b). The FCC has recognized that the transition will never gain momentum until this is accomplished. The industries are close to agreeing on standards that would make TV sets "plug and play" and include devices that would incorporate cable tuners and descrambling technology to allow TV sets to work with any cable system. Currently, the lack of standardization means that a $5,000 digital TV hooked up to a Comcast cable system might not work if the owner moves to an area served by a Time-Warner cable system. (Higgins, 2002).

Proposed Legislative Action

House Commerce Committee Chairman Billy Tauzin (R-La.), plans to introduce legislation in 2003 that would solidify the December 2006 termination date for analog broadcasting. The bill would draw a hard-and-fast line and require the total surrender of the analog channels on December 31, 2006. Tauzin's draft proposal would replace the current law which allows television stations to keep their analog station going until 85% of local households have DTV sets or converters. (Hearn, 2002).

The draft also would forbid the FCC from mandating dual must-carry of both the analog and digital signals by cable systems because it is the committee's opinion that dual must-carry would be an onerous obligation on cable companies. (McConnell, 2002). The issue of must-carry of multiple DTV channels for stations that engage in multicasting was not addressed in the Tauzin draft proposal.

Other components of the draft include rules that would ensure equipment interoperability. Equipment would have to be manufactured so that subscribers could receive, without separate set-top boxes, basic and premium digital TV programming in standard and high definition formats. It would require that all digital TV display equipment include digital interface connections and that the equipment be upgradeable. Furthermore, the bill would direct the FCC to order the end of the production and sale of analog television sets by July 1, 2005. (News editors, 2002b). This last provision would have a far-reaching impact on consumers as they are faced with replacing their existing sets with an entirely new television system.

Consumer Acceptance

For consumers to enjoy the full benefits of DTV and especially high-definition television, they will have to purchase a new television set. Existing sets will not be able to display or receive any of the DTV signals or ancillary services without the use of a digital converter box. Even with a converter box, existing sets will not be able to display HDTV signals because their design does not permit the picture quality available from HDTV-only sets. In spite of self-imposed guidelines for product labeling by manufacturers, some television sets are currently being marketed as "digital" or "high-definition capable" that do not actually display HDTV at its full potential. These sets only display signals in the standard-definition format which, while still an improvement, is not true HDTV. (FCC fact sheet, 1998). It is likely that the typical consumer does not understand or appreciate these limitations and the conversion will be the source for an immense amount of confusion in the marketplace.

Will consumers accept the change? Are they willing to summarily replace their televisions for the sake of stunning pictures and breathtaking sound? While there is little doubt that we are becoming an increasingly technologically sophisticated society, one has to wonder whether consumers, who have been quite satisfied with their black and white RCA's with the rabbit ears in the kitchen, are going to spend $2,000 for a new TV just to watch the nightly news.

Conclusion

The transition to digital television is undoubtedly the biggest change in the entire history of the medium. The nation's broadcasters, faced with government mandated deadlines and an unknown and unpredictable future business model, have invested between $3 million and $10 million per station without any guarantees of additional revenue. (DTV Transition, 2002b).

In spite of the upfront costs, digital television does offer broadcasters limitless possibilities for a variety of new program and content services. While several unresolved issues and obstacles remain for both the industry and for consumers, the DTV rollout is proceeding in a reasonable and timely fashion. There is no doubt that the television set is turning into an entirely new appliance with different capabilities. No longer will it simply be a passive lean-backward device. Television is coming alive and it is expected that DTV will change people's relationship with their television.

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Addendum – DTV Rollout Status Update (June 2003)

Because this paper deals with continuously changing topical information, this update provides an update of the DTV rollout status. According to the FCC, the total number of allocated commercial DTV channels is 1,315. As of May 21, 2003, the FCC lists 909 commercial stations on the air with DTV operation representing 69.1% of the total commercial DTV allocations in the country. Only 381 (29%) are licensed as a full power facility, and the others have special temporary authority (STA's) to operate at low power or from temporary transmission facilities. (FCC, 2003a). Just over 58% of the DTV stations currently operating are operating with STA's. It is therefore inaccurate to say that over 90% of the country has DTV. Further analysis broken down by market size indicates that it is the small markets that have yet to make a successful conversion, however there has been substantial progress since 2001. (see table 1).

Table 1 – DTV Buildout Status

	10/30/02	5/21/03
DTV stations on-air	562 (42.7%)	909 (69.1%)
Full-power DTV stations	279 (21.2%)	381 (29.0%)

Source: FCC summary of DTV applications filed

Among the top ten Nielsen DMA markets, 38 of 40 network affiliates are on the air with DTV (95%). Importantly, this category contains a sizeable population and represents nearly 30% of all U.S. television households. (Nielsen, 2003). Network affiliated stations in these markets were to have a digital signal on the air by May 1, 1999.

In markets 11-30, 75 of 79 affiliates (95%) have a DTV signal on the air. (FCC, 2003a). When combined with the ten largest markets, the top-30 markets represent stations covering 53.5% of the television households in the country. (Nielsen, 2003).

Network affiliated stations in these markets were required to transmit a digital signal by November 1, 1999.

Nielsen markets 31-75 represent 24.5% of the television households in the country, which now brings the cumulative national household coverage to 78%. (Nielsen, 2003). Stations in these markets had until May 1, 2002 to begin broadcasting a digital signal. However, several stations were granted waivers and extensions and as a consequence, many large and medium markets do not have the full compliment of network affiliated stations broadcasting DTV. (see table 2).

Table 2 – Listing of Top-75 Markets Without Operating Network Affiliated DTV

Rank	Market	Station not broadcasting DTV
5	San Francisco	ABC
17	Miami	NBC
26	San Diego	FOX
27	Hartford/New Haven	NBC, FOX
33	Kansas City	NBC
40	Birmingham	ABC
42	New Orleans	ABC, FOX
44	Buffalo	ABC, FOX
45	Oklahoma City	CBS
47	Harrisburg/Lancaster	ABC
53	Wilkes Barre/Scranton	FOX
54	Austin	ABC
55	Albany/Schenectady	CBS, NBC, FOX
57	Fresno	CBS
61	Charleston (WV)	NBC, CBS
63	Knoxville	CBS
64	Flint/Saginaw	NBC, FOX
65	Lexington	NBC
67	Roanoke	ABC
70	Ft. Myers/Naples	CBS
71	Honolulu	CBS, FOX
72	Des Moines	ABC
73	Springfield (MO)	CBS, ABC, FOX
74	Tucson	ABC, CBS, NBC, FOX

source: NAB listing of DTV stations in operation

There are 135 remaining smaller markets (76-210), representing 22% of the U.S. television households, where stations were also to begin broadcasting a digital signal by

May 1, 2002. According to the NAB's list of DTV stations currently in operation (NAB, 2003a), 113 small markets (83.7%) have at least one commercial television station broadcasting in digital. This is a marked improvement over 2002 where 93 markets (68.8%) had at least one commercial DTV station (NAB, 2002a), and a substantial gain over the previous year where only 24 of these 135 markets, or 17.8%, had one digital station on the air. (NAB, 2001). Many small markets, however, currently do not have a full compliment of network affiliated stations broadcasting in DTV and some have only a single low power station.

The Consumer Electronics Association (CEA) reports that April 2003 factory-to-dealer sales of DTV products was 170,000 units, a 45% increase over the previous year. (CEA, 2003a). October 2002 factory-to-dealer sales of digital television products set an all-time record with unit sales totaling nearly 300,000 units. These figures marked a 56% unit increase over October 2001. (CEA, 2002). The CEA projected that 2.7 million DTV products would be sold in 2002. Actual unit sales to dealers in 2002 totaled 2.48 million units. (CEA, 2003b). The CEA projects that unit sales will increase to 4 million in 2003, 5.4 million in 2004, 8 million in 2005 and 10.5 million in 2006.

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The State of Convergence Journalism:

United States Media and University Study

Carrie Anna Criado, J.D. and
Assistant Professor
Southern Methodist University
Division of Journalism
P.O. Box 750113
Dallas, TX 75275-0113
ccriado@mail.smu.edu
(214) 768-1187

Camille Kraeplin, Ph.D.
Visiting Professor
Southern Methodist University
Division of Journalism
P.O. Box 750113
Dallas, TX 75275-0113
kraeplin@mail.smu.edu
(214) 768-3431

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The State of Convergence Journalism:
United States Media and University Study

Media convergence is the most significant development in the news industry in the last century. The ability to interchange text, audio, and visual communication over the Internet has fundamentally transformed the way news organizations operate. Convergence has enabled media companies to gather, disseminate, and share information over a variety of platforms. Throughout the history of journalism, it has been common for journalists to study one medium, such as traditional print or broadcast, and to anticipate a career working only in their chosen field. However, the 21st century journalist has fluidity to write and deliver news content in a variety of formats.

In the 1990s, media mergers and technological innovations gave birth to convergence journalism. There has been much discussion over the precise meaning of convergence and a fully converged newsroom. "Convergence generally means that all component platforms available for delivery to a web based operating system contribute to the overall information product. It also implies that information sharing and enhancement takes places along the way" (Killebrew, 2002). Articulating a standard definition of convergence is not the intent of this research paper. For purposes of this study, convergence journalism is defined as print, broadcast and online news staffs forging partnerships in which journalists often work and distribute content across several news platforms.

Those of us who monitor the pulse of journalism know of at least a handful of high-profile success stories of such convergent news operations. Media General's Tampa, Florida, facility was one of the first to bring print, broadcast and online staffers under one roof dubbed the "News Center." As part of Media General's convergence efforts, journalists from the Tampa Tribune, WFLA-TV, and Tampa Bay Online came together to share news content (Colon, 2000).

On June 2, 2003, the Federal Communications Commission approved sweeping changes in media ownership rules. A single company can now own broadcast TV stations that reach 45 percent of U.S. households. The previous cap was 35 percent. Futhermore, under new regulations, it is now permissible for a company to own several TV stations, radio stations, and the only daily newspaper in the same market. However, some restrictions on cross-ownership remain in the smallest markets (CNN, 2003). These rule changes could fuel more convergent news operations.

But what does this type of activity mean for the future of journalism? That is the research question we will address in this study: Has a monumental shift occurred, has convergence journalism gone beyond experiment to become the status quo? This information is crucial because it will help us know unequivocally whether journalism has crossed a new threshold. And to that end, our findings will serve as a tool to help journalism educators and industry leaders respond to that change.

Literature Review

Previous academic research anticipated the convergence trend. "Digital communications encourages and requires students- and- professors to think in multiple dimensions: aural(listening to radio and television content, perhaps even sound effects embedded in text), visual (reading text and viewing video), and tactile (with an active media interface)" (Thompson, 1995).

The trade press also closely covered the first industry experiments in convergence journalism. Much of this coverage presented the philosophical questions surrounding any news industry trend: Will convergence work, and how? (Barnhart, 1999). Will it help the industry or hurt it? And if it does help, who will benefit most, company executives and shareholders, or front-line journalists and the public they serve? (Tompkins, 2001). Other reports told the stories of news organizations and journalism schools that had embraced the convergence model, the steps they had taken, the lessons they had learned (Harvey, 2000).

These anecdotes and debates have enhanced our understanding of convergence, but a more systematic, comprehensive study of the current landscape is needed.

A United States study was conducted in 2002 to examine convergence efforts in television newsrooms. The research paper explored how TV news directors defined convergence and how it is being practiced the nation's TV newsrooms. Researchers found that "nearly nine of ten (88.8%, 150) news directors said they are currently practicing a type of convergence" (Forte Duhe', et al., 2002).

As this paper was being written, however, no research that examines the entire scope of convergence efforts among the industry and the academy has appeared in any of the journals dedicated to scholarship in journalism and mass communication. Journalism educators and industry leaders need this map to guide us as we decide whether and how to move from training journalists who know one delivery system – print, broadcast and, increasingly, online – to convergence journalists who may specialize in one system but are proficient in all three.

Research question

The study's focus is exploratory: to determine the extent to which both media companies and university journalism schools around the country have embraced convergence journalism. Within the industry, for instance, how many organizations have changed their newsgathering practices or forged partnerships to facilitate content sharing and/or multi-platform delivery? Likewise, how many journalism departments have overhauled their course offerings to prepare students for a professional environment where the ideal job candidate can produce content for print, broadcast and online distribution? And are media companies and universities plunging into convergence journalism or merely getting their feet wet?

Methods

To conduct this study, three different groups were surveyed: newspaper executive editors, television news managers, and journalism school deans or department chairs. To select our sample, we identified the 210 largest U.S. media markets, based on rankings provided by Nielsen Media Research (Nielsen, 2002). We randomly chose one TV station from each market. We then selected the largest daily newspaper, based on circulation, from the same 210 markets (there was only one newspaper in the vast majority of markets). To identify undergraduate journalism departments, we turned to *U.S. News & World Report* magazine's annual rankings and included all national universities in the top four tiers, which equals roughly 240 (U.S. News, 2002). Colleges and universities in the initial sample that did not have full-fledged undergraduate journalism divisions were excluded from the study.

To conduct our research, we enlisted the assistance of The Linda and Mitch Hart eCenter at Southern Methodist University. An 18-question survey was emailed in October 2003 to the sample of newspaper editors and TV news directors from the top 210 markets. A 33-question survey was also emailed to the sample of deans and division chairs of 105 undergraduate journalism programs. In November 2003, a second round of emails was sent to those who had not responded to the first survey request. To improve response rates, a final round of follow-up phone calls was conducted and concluded in January 2003.

Determining a response rate for this online study was difficult. Overall, 42 TV executives, 46 university journalism administrators and 64 newspaper executives responded. For the television sample, in particular, our raw numbers were lower then we would have liked. However, basing our calculations on the number of individuals in our initial population who had the opportunity to complete the survey, we obtained a 40 percent response rate from the newspaper sample, a 38 percent response rate from the television sample, and a 46 percent response rate from the university sample.[1]

Just over a third of television stations in the sample, 37.25 percent, are in large markets (1-50 based on Nielsen ratings). Just under a third, 29.41 percent, represent mid-sized markets (51-100). The remaining third of the stations, 33.34 percent, are in small markets (101 or higher). Mid-sized papers represented most of the newspaper sample. Just under half, 45.59 percent, have circulations from 25,000 to 74,999. Nearly that many, 44.12 percent, have circulations between 75,000 and 149,999. Around 6 percent (5.88 percent) of the sample is newspapers in the 10,000 to 24,999 circulation category, and another 4.41 percent are in the 150,000+ category. Among the university journalism programs included in the sample, 38.10 percent are stand-alone divisions that are not part of a larger school or college of communication, 40.48 percent are part of a school or college of communication, and 21.42 percent represent a school of journalism. Of those programs, around 19 percent have fewer than 100 majors, 37 percent have at least 100 but fewer than 500 majors, 28 percent have at least 500 but fewer than 1,000 majors, and 16 percent have 1,000 majors or more.

Results

Both media organizations and journalism educators appear to see convergence as important to the future of the profession. The vast majority of both newspapers and TV stations surveyed have forged convergence partnerships, defined as the sharing of content and/or staff with another media platform – around nine in 10 newspapers and eight in 10

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[1] Our most significant obstacle was outdated email addresses, especially among television executives. Email addresses are generally unique to an individual. Therefore, our bad emails were not forwarded the way snail mail would be. They simply bounced back. In addition, we were unable to locate a daily newspaper in several of the 210 markets. And at least a few of the randomly selected local TV stations did not have news divisions (this was not discovered until follow-up calls were being completed). Clearly, these unanticipated problems made it difficult to get our survey to the correct people. When we do not adjust our sample to account for individuals we were unable to reach, our response rates are as follows: TV, 20%, newspapers, 31%, universities, 44%.

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TV stations. Likewise, university journalism programs have also moved toward convergence. Just under nine in 10 of the college administrators surveyed said they had incorporated, or begun to incorporate, cross-platform training into their coursework. Survey data suggest these divisions have acted wisely. There appears to be a significant need for convergence training, since despite the growing demand for convergence skills, this training is generally not taking place on the job. Of the two mediums, TV executives are more likely to prepare their journalists for convergence work. Nearly one-tenth (7.5 percent) of TV staff involved in convergence projects have received substantial training, defined as 20 hours or more. Exactly half have been trained for 20 hours or less. But four in 10 (42.5 percent) of the TV respondents said their staff has received little or no convergence training. In contrast, among newspaper respondents with convergence relationships in place, more than half (53.13 percent) said their staff has received no cross-platform training. Another 43.75 percent said staff has received some convergence training. Only 3.12 percent of these editors said their staff has received substantial convergence training of 20 hours or more.

Table 1: Newspaper & TV convergence partnerships

	TV (N=42)	Newspaper (N=64)
Partnership with Web site	83%	95%
Partnership with newspaper	41	----
Partnership with radio	67	31
Partnership with TV	-----	70

Most of the convergence relationships identified in the survey involve a Web partner, nearly all the newspapers and 83 percent for TV (see Table 1). After Web partners, newspapers were most likely to be in arrangements with TV stations. Seven in

10 newspapers had a TV partner, versus four in 10 TV stations that reported a newspaper partnership. This disparity may reflect the greater number of TV stations in most markets. In contrast, TV stations more frequently reported radio partnerships – close to seven in 10 versus just under a third of newspapers. Most convergence activity involves breaking news. Around 67 percent of newspaper editors and 65 percent of TV executives said they frequently worked with partners to cover breaking news events. In contrast, half of editors and one-fourth of TV executives said they frequently worked with their partners on long-term projects or investigations. And around 44 percent of newspaper managers and 40 percent of TV managers said they frequently collaborated on or shared daily features.

Newspaper and television executives cite somewhat different reasons for pursuing convergence (see Table 2). Editors, for instance, say their organizations are most interested in competing in a digital age. However, they also value the cross-promotional opportunities convergence partnerships provide. Interest in improving coverage and reaching a younger audience were also cited as important reasons for entering convergence partnerships. TV executives, in contrast, cited cross-promotional opportunities as the most important impetus for entering a convergence partnership. They also said the desire to improve coverage and the need to be competitive in a digital

Table 2: Factors cited as important/very important in deciding to become involved in convergence partnership(s)

	TV (N=42)	Newspaper (N=64)
Interest in cross-promotional opportunities	95%	82.82%
The desire to improve coverage	80	65.63
The need to be competitive in a digital age	73.71	84.37
Interest in reaching a younger audience	40	76.57
The need to cut costs	20.51	12.51

age were important reasons for getting involved. However, they are not as likely as newspaper editors to see convergence partnerships as a means of reaching a younger audience. Both groups cited the need to cut costs as the least important factor affecting their decision.

Attitudes Toward Convergence Skills

As suggested above, one important question journalism educators face today is to what extent their graduates should be trained in convergence skills. To determine this, a section of the survey for both television and newspaper managers attempted to gauge the value these managers place on convergence skills compared with other more traditional journalism skills and training when hiring staff. We also asked journalism educators about the value they believe media managers place on these skills when considering new journalism hires. The majority of respondents representing both television stations and newspapers consider convergence skills important for a new hire (see Table 3). Around a quarter (23.53 percent) of TV managers said this would be very important, while nearly half (49.02 percent) said it would be somewhat important. Newspaper managers were nearly as likely to say they consider convergence skills important when hiring. Just under two in 10 (16.18 percent) said this was very important, while just over half (52.94 percent) called it moderately important. Journalism educators likewise anticipate a stronger demand for these skills. For instance, 31.1 percent said they believed that being trained in more than more medium would be very important for their students when applying for journalism jobs. Another 62.2 percent said these skills would be moderately important to media managers.

We also asked respondents how important they considered specific skills – from writing and reporting to Web language and design – to be for a new journalism hire, or in the case of journalism educators, how much they thought media managers valued these skills (see Table 4). Not surprisingly, all three groups agreed that such fundamentals as reporting and writing are critical. In comparison, convergence-related skills were viewed as valuable, but secondary. For instance, nearly 100 percent of all three groups said news writing and reporting skills are important for new journalism hire, and nearly 100 percent across groups agreed that news judgment is important. Knowledge of media law and ethics is also viewed as desirable in new hires – around 98 percent of TV and university respondents and 93 percent of newspaper respondents agree this is important. Likewise, just over nine in 10 in all three groups agreed that a broad liberal arts background is important.

Table 3: How important convergence skills are to media managers when hiring*

	TV managers (N=51)	Newspaper managers (N=69)	Journalism educators (N=46)
Very important	23.53%	16.18%	31.1%
Moderately important	49.02	52.94	62.2
Not at all important	27.45	30.88	6.7

*TV and newspaper respondents were asked how important these skills would be to them; educators were asked how important they believed these skills would be to media managers when hiring. Includes those who are and are not involved in convergence partnerships.

There was less agreement over the importance of other "non-convergence" skills and knowledge areas. Not surprisingly, nearly all the TV executives said visual literacy would be a very important hiring criterion, compared with around 90 percent of newspaper managers and 82 percent of journalism educators. These numbers suggest that in today's digital environment, journalism educators shouldn't underestimate the value of a young journalist's ability to think in pictures. Data also suggest that newspaper editors and university educators place more value on specialized knowledge – such as expertise in business or science – than do TV executives. But TV managers are somewhat more likely to expect new journalism recruits to have some understanding of the economic issues of concern to media industries.

Table 4: Respondents who viewed journalism skills as important (includes moderately important, important and very important responses)*

	TV (N=51)	Newspaper (N=69)	University (N=46)
Writing/reporting skills	100%	98.55%	100%
News judgement	100	98.55	100
Knowledge of media law & ethics	98.04	92.75	97.72
Broad liberal arts background	92.16	92.75	95.45
Visual literacy	97.87	89.86	81.81
Specialized knowledge (science, business, etc.)	64	85.51	84.09
Understanding of media economics	59.18	47.82	48.84
Internet researching skills	96	98.55	97.73
The ability to write across mediums	80	59.42	79.55
Web language & design skills	30.61	31.89	65.91

*Includes both respondents who are and are not involved in convergence partnerships.

The new media skill that is valued most highly by all three groups is the ability to research on the Internet (see Table 4). Some 99 percent of newspaper managers, 98 percent of journalism educators and 96 percent of TV executives said this would be important when making hiring decisions. As for the ability to write across mediums, TV and university respondents both placed significant value on this skill, with about eight in 10 saying it was important versus around six in 10 newspaper respondents. Only about a third of industry respondents – both TV and newspaper executives – said they expect new hires to be proficient in Web language and design. This contrasts fairly significantly with the two-thirds of journalism educators who believe this is important.

TV Stations

Table 5: Ways in which TV staff contribute to Web partner(s) (N=35)

	Very frequently	Frequently	Occasionally	Rarely	Never
TV reporters write exclusive Web stories	8.57%	5.71%	14.29%	31.43%	40%
TV reporters provide versions of stories they've written for TV newscasts	51.42	22.86	5.71	5.71	14.29
TV reporters provide briefs or updates on breaking stories they may be covering	20	20	34.29	11.43	14.29

The TV stations surveyed represent a range of sizes, from small market to large. Just over a third of stations in the sample are in large markets (1-50 based on Nielsen ratings), just under a third represent mid-sized markets (51-100) and the remaining third are in small markets (101 or higher). As noted above, just over eight in 10 (82.35 percent) of the television stations surveyed are involved in some sort of convergence partnership, defined as the sharing of content and/or staff with another media platform. Most of these involve a Web partner. Around 83 percent of the TV stations in a convergence partnership have a Web partner. Almost seven in 10 (67percent) have partnered with a radio station. And just over four in 10 (41 percent) have formed a partnership with a newspaper.

Most TV-Web partnerships (57.14 percent) involve a relationship with the station's own Website. Another 20.41 percent are in a partnership with a Website associated with the TV station's parent company, 16.33 percent are in a partnership with a Website associated with an unaffiliated media company, 2.04 percent are associated with a news portal and 4.08 are in some other Web-related partnership. The nature of these partnerships varies from station to station, with most following a semi-converged model, where content originally developed for broadcast is simply recast for the Website. For instance, most stations provide at least some content to their Website partner (see Table 5). Usually this consists of having reporters provide versions of stories they've written for a newscast to the Website. Nearly 75 percent of station managers surveyed said their staff members frequently contribute to Web content in this way. Station staff are also fairly likely to provide briefs or updates on breaking stories they may be covering. Some 40 percent of station managers said their staff frequently provides this type of content. Station staff members are much less likely to write exclusive Web stories. In fact, only 14.28 percent of station managers said their staff frequently contributes original Web content.

Table 6: Ways in which TV staff contribute to radio partners (N=28)

	Very frequently	Frequently	Occasionally	Rarely	Never
TV reporters write for radio broadcasts	32.14%	10.71%	10.71%	3.57%	42.86%
TV reporters, anchors or other staff are interviewed on air	29.63	11.11	22.22	29.63	7.41
TV reporters, anchors or other staff members host radio show/segments	17.86	3.57	7.14	28.57	42.86

After Websites, TV stations are most likely to have a convergence partnership with a radio station. Of the eight in 10 stations surveyed that are involved in convergence partnerships, 67 percent have a radio partner. Most of these partnerships (72.41 percent) involve a local commercial station that doesn't share the TV station's parent company. Another 20.69 percent involve a local commercial station that is owned by the TV station's parent company. And 6.9 percent are partnered with a public radio station. Perhaps because of their similar broadcast base, these partnerships seems to involve a somewhat wider range of cooperative behaviors than the TV-Web partnerships (see Table 6). For instance, 42.85 percent of TV managers say their staff frequently write for radio broadcasts, while 40.74 percent say staff are frequently interviewed on the radio, and 21.43 percent say their reporters, anchors or other staff frequently host radio shows or segments.

Table 7: Ways in which TV staff contribute to newspaper partners (N=18)

	Very frequently	Frequently	Occasionally	Rarely	Never
TV reporters write for the newspaper	11.11%	5.56%	5.56%	11.11%	66.67%
TV reporters, anchors or other staff members are quoted in the newspaper	29.41	----	41.18	----	29.41
TV reporters, anchors or other staff members have column in the newspaper	18.75	6.25	----	18.75	56.25

TV-newspaper partnerships are not as common as TV partnerships with a Website or radio station. But still, of the eight in 10 TV stations involved in convergence partnerships, over 40 percent have partnered with a newspaper. Nearly all of these partnerships (94.74 percent) are with local newspapers that are not owned by the TV station's parent company. Given the difference between the two mediums, TV-newspaper relationships are more limited in scope than those with radio partners (see

Table 7). Only 16.67 percent of the TV managers say their reporters frequently write for the newspaper. A quarter say their reporters, anchors or other staff frequently write a newspaper column. And just under a third, 29.41 percent, say their reporters, anchors or other staff are frequently quoted in the paper.

Newspapers

The newspaper sample followed a fairly normal curve. Mid-sized papers represented most of the sample. Just under half have circulations from 25,000 to 74,999. About the same number have circulations between 75,000 and 149,999. Around 6 percent of the sample is newspapers in the 10,000 to 24,999 circulation category, and another 4 percent or so are in the 150,000+ category. As noted above, nearly all the newspapers surveyed (93 percent) are involved in some form of convergence partnership, most often with a Website. Around 95 percent of newspapers that are involved in convergence partnerships have a Web partner. Newspaper-Web partnerships are most common, but around seven in 10 newspapers in this group have paired up with a TV station, and around a third with a radio station.

Most of the Web relationships (62.35 percent) are with a site directly associated with the newspaper. Another 22.35 percent are with a Website associated with the paper's parent company. Nearly a tenth (9.41 percent) are associated with a news portal, 2.35 percent with a Website operated by an unaffiliated media company, and 3.53 percent with some other type of site. There is some variation in the form these partnerships take, but again, like the TV-Web partnerships, most follow a semi-converged model, with newspaper content simply being recast on the Web (see Table 8). For instance, 60.66

percent of newspaper managers say their reporters frequently provide versions of stories they've written for the newspaper to the Web. And 55.74 percent say their reporters frequently provide briefs or updates on breaking stories they may be covering. In contrast, only 26.22 percent say their reporters write exclusive Web stories.

Table 8: Ways in which newspaper staff contribute to Web partner(s) (N=61)

	Very frequently	Frequently	Occasionally	Rarely	Never
Reporters write exclusive Web stories	13.11%	13.11%	16.39%	22.95%	34.43%
Reporters provide Web versions of stories they've written for newspaper	49.18	11.48	21.31	3.28	14.75
Reporters provide briefs or updates on breaking stories they may be covering	36.07	19.67	26.23	9.84	8.20

Newspaper-Web partnerships are most common, but newspapers are also likely to be involved in a convergence partnership with a TV station. Nearly three-quarters (69.84 percent) of the newspapers in convergence partnerships are associated with a TV station. Most of these relationships (65.31 percent), as the TV survey suggests, are with local commercial stations that are not owned by the newspaper's parent company. Another quarter or so (26.53 percent) are with local commercial stations that are owned by the newspaper's parent company. The remainder are partnered with a regional or national cable station, usually owned by the newspaper's parent company. Again, many of these relationships are fairly limited (see Table 9). The most common form of cooperation usually involves newspaper reporters and editors being interviewed on air. This frequently takes place at around 40 percent of the newspapers involved in a TV partnership. Newspaper staff occasionally appear on air, hosting a TV show or segment. Some 13.33 percent of newspaper managers say their reporters or editors frequently contribute to the partnership in this way. Newspaper staff members generally are not asked to write for their TV partners. Only 11.11 percent of newspaper managers say their reporters frequently write for broadcasts.

Table 9: Ways in which newspaper staff contribute to TV partner(s) (N=45)

	Very frequently	Frequently	Occasionally	Rarely	Never
Reporters write for TV broadcasts	6.67%	4.44%	8.89%	11.11%	68.89%
Reporters and/or editors are interviewed on the air	17.78	22.22	28.89	26.67	4.44
Reporters and/or editors host TV shows or segments	11.11	2.22	24.44	13.33	48.89

Compared with TV stations, newspapers are much less likely to be involved in a radio partnership. But some newspapers, 31 percent of those in convergence partnerships, are associated with a radio station. More than half of the time (54.55 percent), as with the TV-radio partnerships, a newspaper is teamed with a radio station that is not owned by its parent company. In just under a third of the cases (31.82 percent), the newspaper is associated with a station that is owned by the same company. Another 4.55 percent of the papers partnered with radio stations are affiliated with a local public radio station, and 9.09 percent are in some other situation. The most frequent way newspaper staff contribute to radio broadcasts is to be interviewed on air (see Table 10). Some 30 percent of newspaper managers say their reporters and editors do this frequently. Just 10.53 percent say their reporters frequently write for radio broadcasts, while 10 percent say their reporters or editors frequently host radio shows or segments.

Table 10: Ways in which newspaper staff contribute to radio partner(s) (N=20)

	Very frequently	Frequently	Occasionally	Rarely	Never
Reporters write for radio broadcasts	10.53%	----	5.26%	15.79%	68.42%
Reporters and/or editors are interviewed on air	15	15	45	15	10
Reporters and/or editors host radio shows/segments	5	5	15	10	65

College Journalism Programs

As noted earlier in the study, nearly nine in 10 (85 percent) of the university programs included in the survey – both large and small, with many majors or few – have adapted their curriculum, or begun to adapt it, in response to the industry trend toward convergence. Most of these changes have been fairly minor. Some 76.92 percent of university respondents with convergence curricula said the said the changes represent a minor shift, that their curriculum has been altered some to accommodate the industry emphasis on convergence. Another quarter (23.08 percent) said the changes they have made represent a major shift, that their curriculum has been completely revamped to reflect the industry emphasis on convergence. In many cases, the curriculum changes have been in place for a number of years – 28.95 percent of convergence programs have been in place for three years or longer, 36.84 percent for one to two years, 18.42 percent for less than a year, and 15.79 percent have been developed but not implemented.

Since most of these programs represent fairly minor curriculum changes, few reflect a truly converged model. Most respondents (51.28 percent) described their programs as ones in which print, broadcast and other majors remain separate tracks of study, with no overlap. Nearly as many (46.15 percent) described a somewhat more converged model, saying that all journalism majors in their program are required to take classes in a range of mediums – such as writing for print, broadcast and online – but then specialize in one sequence. Only one respondent described his/her convergence program as "truly converged," where students work across platforms throughout their studies.

As Table 11 shows, all the programs described appear to train students in a range of media, although the emphasis remains on print, with 89.74 percent of convergence programs training most or all of their students to write for print media. Nearly half (46.15 percent), however, also train most or all of their students to write for the Internet. And just under four in 10 (38.46 percent) train most or all students to write content for broadcast. Fewer programs expose a majority of students to the technical skills associated with online or broadcast media – learning Web language and design, for instance, or handling a camera for TV. Survey data suggest, however, that the most important role for the Internet in journalism programs may be as a research tool. Some 95 percent of the convergence programs included in the survey train most or all of their students to use the Internet in this way.

In many cases, students in converged journalism programs are exposed to cross-platform training fairly early in their coursework. For instance, students encounter convergence training, or training in more than one medium, in both lower- and upper-level courses in about 46.15 percent of converged programs, and in lower-level courses, when they take their first journalism classes, in about 7.69 percent of programs. Another 46.15 percent of programs wait till students are in upper-level courses to introduce them to training in convergence skills. About 53.85 percent of these programs include at least one course in their curriculum where students are expected to write for or produce content for all three primary media – print, broadcast and the Internet. And 35.71 percent of those programs require all students to take that course.

Table 11: Number of journalism students who receive training in these areas in convergence journalism programs (N=39)

	All	Most	Some	Few	None
Using the Internet as a research tool	65.79%	28.95%	5.26%	----	----
Writing for print media	74.36	15.38	10.26	----	----
Writing for online media	15.38	30.77	33.33	20.51	----
Writing for broadcast media	15.38	23.08	43.59	12.82	5.13
Learning Web language & design skills	5.26	18.42	34.21	34.21	7.89
On-air presentation for TV	2.56	7.69	48.72	33.33	7.69
Learning broadcast technical skills	----	7.89	36.84	42.11	13.16
On-air presentation for radio	2.63	5.26	34.21	36.84	21.05

Discussion

It is clear from research findings that the vast majority – around 90 percent of newspapers, 80 percent of TV stations and close to 90 percent of undergraduate journalism programs – surveyed report movement in the direction of convergence. Furthermore, all three groups believe that convergence skills are important for new journalism hires. Around nine in 10 journalism educators, and seven in 10 of both newspaper and television managers say these cross-platform capabilities are valuable. However, while technological innovations will continue to play a role in how journalists function in the 21st century newsroom, the fundamentals of news writing and reporting remain of utmost importance to industry leaders and journalism faculty. Furthermore, all survey participants continue to value the historical traditions of journalism education, including development of strong news judgment, knowledge of media law and ethics, and a broad liberal arts background. The new media skill that is most valued among industry leaders is the ability to perform Internet research. As far as convergence journalism is concerned, the ability to write across mediums is considered important to 80 percent of TV news directors, 59.42 percent of newspaper editors and 79.55 percent of journalism faculty surveyed.

Many of the convergence partnerships identified in the sample take advantage of natural affinities, such as the one between TV and radio. The Web, however, appears to be the overwhelming favorite for cross-platform cooperation, with the vast majority of both mediums in the sample, and especially newspapers, saying they had a Web partner.[2] Although convergence relationships are in place, many still follow what can be called a "semi-converged" model, meaning that partners often simply repurpose material, such as sending newspaper stories to a Website, rather than actually adapting their skills to another medium. However, in some cases, a truly converged model exists. For instance, about 15 percent of television executives say their staff frequently contribute original content to the Web. This is even more common among newspaper reporters, with over a quarter of editors from papers in convergence partnerships saying their staff contribute original Web content on a frequent basis. TV reporters are likely to create original content for radio partnerships – more than four in 10 stations in the sample frequently ask reporters to write original scripts for radio. Another common hallmark of these relationships is partners serving as experts/sources. For instance, nearly a third of TV respondents say their staff frequently are quoted in newspaper-partners' stories. An even higher 40 percent of newspaper respondents say reporters and editors often appear on-air on TV partners' broadcasts.

The responsibility of training journalists for convergence work rests with both the media industry and the academy. However, much of the responsibility, at this point, seems to rest with the academy. Despite the growing demand for convergence skills, cross-platform training is not taking place on the job. Only about 7.5 of TV staff are required to take part in convergence work and an even lower 3.12 percent of newspaper staff receive significant convergence training. Nearly half of TV respondents and more than half of newspaper respondents say their staff receive little or no instruction in convergence work.

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[2] Unfortunately, researchers are able to exercise less control over the completion of e-mail surveys than with phone surveys. A number of survey questions, especially within the TV sample, were left incomplete, including the question about Website partnerships. Thus, there is the possibliity that there is a higher ratio of TV-Web partnerships than the data reflect.

About half of all undergraduate journalism programs surveyed now offer a series of convergence news writing courses. It is time for all journalism programs to consider doing the same or to risk graduating students without the tools they will need to succeed in today's workplace. Some training is also going on at the professional level. It could also be increased.

Industry leaders surveyed suggest they have entered into convergence partnerships as a cross promotional tool, a way to improve news coverage, and a way to remain competitive in a digital age. However, a small percentage of media executives (20.51 percent of TV news directors and 12.51 percent of newspaper editors) cite convergence efforts as an important way to cut costs. It is also interesting to note that media mergers and integration do not appear to be driving convergence journalism. The survey data indicate that by far most convergence partnerships are with a local medium that is not owned by the TV station or newspaper's parent company. Instead, interest in cross-promotional opportunities, improving coverage, competing in a digital age and, in the case of newspapers, reaching a younger audience, are propelling convergence journalism partnerships.

This research serves as an important benchmark as it was conducted prior to major media ownership rules changes approved by the FCC in June 2003. As mentioned above, a key finding of this study is the fact that the majority of convergence journalism partnerships have taken place between different companies. Will this change now that the way has been cleared for a single company to own several TV stations, radio stations, and the main newspaper in the same market? Further academic research could explore the impact of the FCC rule changes on convergence journalism efforts for years to come.

Even with all the technological advancements that today's journalists enjoy, it may seem implausible and even detrimental to expect working journalists to excel in all areas of print, broadcast, and online writing. Will we end up with jacks- of- all- trade or continue to have print, broadcast, and online specialists? Additional research is needed to determine the expectations of 21st century journalists. Perhaps, the best we can hope for at this juncture is to cultivate versatile news writers who are rooted in the best traditions of journalism and who have a sense of how to present news and information with convergence in mind.

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EFF-089 (1/2003)